









## **PROCEEDINGS**

OF THE

# CONNECTICUT STATE MEDICAL SOCIETY

1907

## 115th ANNUAL CONVENTION

HELD AT

HARTFORD MAY 22d and 23d

EDITOR
WALTER R. STEINER

ASSISTANTS

WILLIAM H. CARMALT

FREDERICK B. WILLARD

The Connecticut State Medical Society does not hold itself responsible for the opinions contained in any article unless such opinions are indorsed by special vote. All communications intended for the Connecticut State Medical Society should be addressed to Walter R. Steiner, M.D., Hartford, Conn.

The next annual meeting of the Connecticut State Medical Society will be held in New Haven, May 27th and 28th, 1908.

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1907-1908.

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MINER C. HAZEN, Haddam.

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WALTER R. STEINER, Hartford.

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JOSEPH H. TOWNSEND, New Haven.

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The Secretary

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Samuel M. Garlick.

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C. S. Rodman, Waterbury,
John G. Stanton, New London,
J. W. Wright, Bridgeport,

S. B. Overlock, Pomfret, C. E. Stanley, Middletown,

E. P. Flint, Rockville,

Elias Pratt, Torrington,

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William H. Donaldson. Frank H. Wheeler.

Charles S. Stern.

COMMITTEE ON A COLONY FOR EPILEPTICS IN THE STATE.

Max Mailhouse. Allen R. Diefendorf. Edwin A. Down. Frank K. Hallock.

The President.

#### COMMITTEE ON VACCINATION.

Everett J. McKnight.

Joseph H. Townsend.

Wyeth E. Ray.

COMMITTEE ON PSYCHOPATHIC WARDS IN GENERAL HOSPITALS.

Allen R. Diefendorf.

Max Mailhouse.

Frederick T. Simpson.

D. Chester Brown.

J. Reed Topping.

COMMITTEE ON NATIONAL LEGISLATION.

Elias Pratt.

#### DELEGATES.

DELEGATES TO AMERICAN MEDICAL ASSOCIATION.

W. H. Carmalt, New Haven, for one year.

D. C. Brown, Danbury, for two years.

#### Delegates to State Associations:

 $\mathbf{M}$ AINE.

M. M. Johnson, Hartford, W. W. Hawkes, New Haven.

NEW HAMPSHIRE.

W. B. Cogswell, Stratford,

F. M. Loomis, Derby.

VERMONT.

R. C. White, Willimantic,

E. T. Davis, Ellington.

MASSACHUSETTS.

W. S. Hulbert, Winsted,

C. E. Munger, Waterbury.

RHODE ISLAND.

J. H. Kingman, Middletown,

F. A. Morrell, Putnam.

NEW YORK.

Jean Dumortier, South Norwalk, C. D. Alton, Hartford.

New Jersey.

C. P. Linsley, New Haven,

C. C. Beach, Hartford.

PENNSYLVANIA.

G. R. Harris, Norwich,

F. I. Nettleton, Shelton.

## HOUSE OF DELEGATES.

#### COUNCILORS.

HARTFORD COUNTY.

OLIVER C. SMITH (successor to George R. Shepherd, deceased, and councilor-elect).

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NEW LONDON COUNTY.

RUSH W. KIMBALL.

EDWARD P. BREWER (councilor-elect).

FAIRFIELD COUNTY.

GOULD A. SHELTON.

WINDHAM COUNTY.

FRANK E. GUILD (re-elected).

LITCHFIELD COUNTY.

EDWARD H. WELCH.

MIDDLESEX COUNTY.

FRANK K. HALLOCK (re-elected).

TOLLAND COUNTY.
CYRUS B. NEWTON.

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HARTFORD COUNTY.

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NEW HAVEN COUNTY.

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Kenneth E. Kellogg.

Edward T. Bradstreet. Henry G. Anderson. Louis M. Gompertz.

William F. Verdi.

NEW LONDON COUNTY.

George R. Harris.

FAIRFIELD COUNTY.

Carlyle F. Ferrin.

J. Reed Topping. Francis I. Nettleton. D. Chester Brown. William S. Randall.

Frank W. Stevens. WINDHAM COUNTY.

Charles C. Gildersleeve.

LITCHFIELD COUNTY.

Theodore R. Parker.

Noah S. Wadhams.

Abram J. Barker.

Arthur B. Coleburn.

MIDDLESEX COUNTY.

J. Francis Calef.

TOLLAND COUNTY.
Thomas F. O'Laughlin.

#### STANDING COMMITTEES.

COMMITTEE ON PUBLIC POLICY AND LEGISLATION.

Everett J. McKnight.

Charles S. Rodman.

John G. Stanton. John W. Wright. Seldom B. Overlock.

Elias Pratt. Charles E. Stanley.

Eli P. Flint.

The President. The Secretary.

COMMITTEE ON MEDICAL EXAMINATIONS.

Horace S. Fuller.

J. Francis Calef.

Walter L. Barber. Charles A. Tuttle.

Samuel M. Garlick.

COMMITTEE ON SCIENTIFIC WORK.

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Seldom B. Overlock.

The Secretary.

COMMITTEE ON HONORARY MEMBERS AND DEGREES.

William H. Carmalt.

Charles C. Beach.

Irving L. Hamant.

COMMITTEE OF ARRANGEMENTS. Frederick T. Simpson.

John B. Boucher.

George N. Bell.

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Wyeth E. Ray.

COMMITTEE ON PSYCHOPATHIC WARDS IN GENERAL HOSPITALS.

Allen R. Diefendorf. Frederick T. Simpson. Max Mailhouse. D. Chester Brown.

J. Reed Topping.

COMMITTEE ON NATIONAL LEGISLATION.

Elias Pratt.

## MINUTES OF THE HOUSE OF DELEGATES.

The first meeting of the House of Delegates was called to order on Wednesday, May 22d, at 12 o'clock, at Hunt Memorial Building, 38 Prospect Street, Hartford, by the President, Dr. William L. Higgins of South Coventry. There were present Dr. Oliver C. Smith, Dr. Charles J. Foote, Dr. Rush W. Kimball, Dr. Gould A. Shelton, Dr. Frank E. Guild, and Dr. Frank K. Hallock (councilors), and Dr. John W. Felty, Dr. William S. Kingsbury, Dr. Edward R. Lampson, Dr. John D. Freney, Dr. Royal W. Pinney, Dr. Joseph H. Townsend, Dr. Louis M. Gompertz, Dr. George R. Harris, Dr. Carlyle F. Ferrin, Dr. Francis I. Nettleton, Dr. D. Chester Brown, Dr. William S. Randall, Dr. Frank W. Stevens, Dr. Charles C. Gildersleeve, Dr. Theodore R. Parker, Dr. Abram J. Barker, and Dr. Arthur B. Coleburn (delegates), the President, Dr. William L. Higgins, and the Secretary, Dr. Walter R. Steiner. The following reports were then read and accepted.

(1) Report of the Secretary, Dr. Walter R. Steiner (Hartford).

## Report of the Secretary.

## Mr. President and Gentlemen of the House of Delegates:

The past year has seen the reorganization of our State Society made more efficient and complete. All of the component county associations are now provided with ample by-laws, which coöperate with those of the State Society to promote our common aims. There are, however, several changes yet to be made to further unify our component county organizations.

The application blanks for membership should be uniform in all the counties and enough biographical data should be upon them to enable the State Secretary to make, if necessary, a slight sketch of any member of our Society. This material should be placed upon a card of uniform size, for the card index of the County Secretaries. A copy of each card should be sent to the State Secretary's office for his index. Last year the House of Delegates passed a law that the County Secretaries should prepare a card index, but no provision was made as to the size of the card or data required for it. As the index is not yet prepared in the different counties, except one in Hartford, previously made and incomplete, I propose that a committee made up of Dr. John B. Lewis, the County Secretaries, and the State Secretary be formed to consider the essentials for the application blanks and the proper size for a uniform card for the card indices of all the County Associations. I also suggest that this committee be given the power to introduce these changes.

Our membership, including the 25 honorary members, is 791, as against 803 of last year. This decrease, however, is not due to the falling off of new members, as 38 were elected during 1906-07, as against 40 of the year previous, but due to the energetic action on the part, mostly, of three County Associations in expelling those of its members who were largely in arrears for dues. The Hartford County Association has added the most new members, the number being eleven. New Haven and Fairfield come next with ten, New London follows with four, Litchfield with two, and Windham with one. Middlesex and Tolland have added no new members during the year. The names of the new members, with graduation and places of residence, are:

Joseph Addison Gibbs, P. & S., N. Y., 1902, Suffield. Whitefield Nelson Thompson, Jefferson, 1889, Hartford. Annabelle Keith Davenport, S. C. Med. Coll., 1903, Hartford. Maude Winifred Taylor, Tufts, 1905, Hartford. James Joseph Boucher, P. & S., Balt., 1904, Hartford. Isaac William Kingsbury, P. & S., N. Y., 1903, Hartford. Edward Joseph Turbert, Balt. Med. Coll., 1904, Hartford.

Patrick Farrell McPartland, Balt. Med. Coll., 1905, Hartford. Thomas Francis Welch, Univ. Georgetown, 1904, Hartford.

James Francis Wilson, Univ. Vt., 1904, Hartford.

Robert Lee Rowley, Yale, 1903, Hartford.

Preston Mytrea Edwards, Univ. Pa., 1893, Hartford.

Michael Joseph Sullivan, Cornell, 1903, Meriden.

Irving Edwin Brainard, Yale, 1902, Wallingford.

Edward Fiske Ashley, Yale, 1900, Waterbury.

Dudley Brainard Deming, P. & S., N. Y., Waterbury.

Andrew Clay Swenson, Yale, 1902, Waterbury.

James John McLinden, Univ. Pa., 1898, Waterbury.

John Edward Lane, Yale, 1903, New Haven.

Edward K. Parmelee, L. I. Hosp. Coll.. 1889, Ansonia.

Edward William Karrman, Univ. N. Y., 1884, Cheshire.

Alice Porter Ford, Woman's Med. Coll., Pa., 1904, New Haven.

Louis Maxson Allyn, Univ. Pa., 1903, Mystic.

James Leon Harrington, Jefferson, 1903, New London.

William Joseph O'Neil, L. I. Hosp. Coll., 1893, New London.

William Daniel Cronin, P. & S., N. Y., 1900, New London.

William Clark Watson, L. I. Hosp. Coll., 1897, Bridgeport.

Jacob Wolf Gerber, Univ. Md., 1904, Bridgeport.

Herman Samuel Schulz, Hahn. Med. Coll., 1901, Bridgeport.

Jesse 'Milton Coburn, Boston Univ., 1874, Norwalk.

Walter Hitchcock, P. & S., N. Y., 1883, Norwalk.

Frank Hazelhurst Barnes, N. Y. Hom. Med. Coll., 1896, Stamford.

Nathan Tolles Pratt, Yale, 1904, Bridgeport.

Charles Nahum Haskell, Yale, 1904, Bridgeport.

Paul Ulysses Sunderland, N. Y. Hom. Med. Coll., 1894, Danbury.

John Harvard Staub, L. I. Hosp. Coll., 1899, Stamford.

Owen O'Neil, Jefferson, 1904, Willimantic.

Norman Brown Saunders, P. & S., N. Y., 1900, Winsted.

Walter Latham Rathbun, Yale, 1903, Litchfield.

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The largest gain of the County Associations is seen in Fairfield and New London, with a net gain of two; Hartford, Litchfield, and Tolland have remained stationary; New Haven presents a loss of sixteen, Middlesex of two, and Windham of one. We have lost during the year fifty-four members, distributed as follows: By death, twelve; by removal, twelve; by suspension, four; by expulsion, twenty-four; by resignation, two. Our total number is distributed among the counties as follows:

	197	
	12	
	<del></del>	
	209	
4		
I		
3		
3		
ΙΙ		
		198
		•
	224	
	234	
2		
4		
15	•	
5		
_		
26		
		208
	2 4 15 5	224 10 

A loss of 16.

	PROCEE	DINGS.			15
New Lond	on, 1906, New members,		55		
	Removed, Present membership, A gain of 2.	2	59		57
Fairfield, 1	906, New members,		146 10 ———————————————————————————————————		
	Removed, Expelled, Died,	1 6 1	150		
•	Present membership, A gain of 2.	8		•	148
Windham,	1906, New members,		36 		
	Removed,	2 — 2	37		
Litchfield,	Present membership, A loss of 1.		57		35
,	New members,		2		

		59
Removed,	1	
Died,	1	
	2	
Present membership,		
Stationary.		

Middlesex,	1906,		44	
	Reinstated,		1	
	Transferred,		I	
			46	
	Removed,	2		
	Died,	2		
		_		
		4		
	Present membership,			42
	A loss of 2.			
Tolland, 19	906,		21	
	New members,		0	
			<del></del>	
	Stationary,		21	

According to the American Medical Directory, recently published by the American Medical Association, there are 1,332 physicians in this state. Excluding the homeopaths and eclectics, who are barred entrance into our Society as long as they "practice or lend support to any exclusive system of medicine," it seems to me that there must be a considerable number among the 416 remaining physicians (approximate calculation only) who should join our numbers. Let us strive, then, to increase our strength, remembering this is one of our aims, so plainly expressed in our by-laws by these words: "The purposes of this Society shall be to federate and bring into one compact organization the entire medical profession of the state of Connecticut."

I was instructed last year to add the word "state" to the seal, but I have been unable to get a description of the original seal and consequently have felt unwilling, on my own responsibility, to go ahead, without further instructions.

The two manuscript volumes of our past transactions were deposited for safe keeping, on April 27, 1907, with the librarian of

the State Library, according to the instructions given me at the last meeting of the House of Delegates. These volumes will there be well preserved and easy of access.

The transactions of some of the State Societies are now printed in journals. Our Society receives most of these and they are now placed, unbound, in the stack-room of the Hunt Memorial Building. I suggest that these periodicals be bound and that all of the transactions from other states, which we own, be catalogued.

Last fall I became much interested in one of our former members, who, during his fifty years in this Society, shed much lustre upon the medical annals of this state. I refer to Elisha North, of Goshen and New London, whose labors in behalf of vaccination bore fruit and still we see its results, thanks to the sanity of our legislators. His book on spotted fever will ever remain a classic, being the first book written upon this disease. During my researches I corresponded with the wife of Dr. H. Carrington Bolton, who was Dr. North's grandson. On March 11, 1907, she sent me this bill of Dr. Elisha North's to the town of Groton and asked me to present it to the Society at its next meeting. It is of interest, as Dr. North's autograph appears in it three times.

Respectfully submitted,

#### WALTER R. STEINER,

Secretary.

(2) Report of the President, Dr. William L. Higgins (South Coventry):

## Report of the President.

House of Delegates of the Connecticut State Medical Society — Gentlemen:

We open today the one hundred and fifteenth annual meeting of this Society.

We have enjoyed a prosperous, but otherwise a rather uneventful year. The recent death of Dr. George R. Shepherd, the chairman of our Board of Councilors, has saddened our hearts. His charming personality, his courteous bearing, and his eminent professional abilities had endeared him to all with whom he came in contact, and they have left their permanent impress upon us all.

The present session of the legislature has amended the Medical Practice Act in accordance with our desires and in the future our examining committees from the several State Societies will be known as examining boards; also several loopholes have been stopped, thereby preventing in the future the registration of undesirable and unqualified candidates.

The biennial anti-vaccination fight in the legislature has been waged with the customary vigor, with the result that the committee on public health and safety have reported nine to two in favor of retaining our present laws. A vote will not probably be reached for several days, but I am anticipating a satisfactory verdict. I am, however, of the opinion that we should adopt some radically different measures in combating the anti-vaccinationists. Although we have been successful so far, the result has been too close at times to be comfortable. It seems to me if we could form some such association in this state as the Public Health Defense League of New York and have a branch society in every town, composed of professional men, laymen, and women who could be instructed in matters of public health and hygiene with especial reference to preventive measures, it would be the means of creating a proper public sentiment which would shortly prevent having one of our best laws placed in jeopardy every two years.

Money was needed by the committee on public policy and legislation for the buying, printing, and distribution of vaccination literature, and I have no doubt that the Society will heartily endorse and sustain this valuable committee in its work.

About \$35 or \$40 is needed to further the cause of establishing an epileptic colony in the state. The committee on public policy and legislation feel, and I heartily agree with them, that it will be wise to follow the advice of our Commission on Epilepsy and have

Dr. Spratling of Sonyea, N. Y., appear before the legislative committee on appropriations and give a talk and exhibit his stereopticon views showing the epileptic in the various attitudes and forms of seizure. Dr. Spratling has kindly consented to come if we will pay his actual expenses. I hope the Society will so vote. I also would request that all the members who possibly can will attend this hearing, which will probably take place within two weeks at the Capitol.

It seems to me that some method should be adopted for filling the office of chairman of the Board of Councilors when it becomes vacant by death, resignation, or other cause. Also some method should be devised whereby a county may not be deprived of representation at meetings of the Council when the Councilor Elect for any cause is unable to attend.

I am sorry that the report of the Secretary shows a loss in membership for the past year. I had hoped to see a substantial gain. There are, I believe, hundreds of eligible men and some women in the state who should become members of our Society and they should receive urgent personal invitations at our hands to join us. It will do them good and it will benefit the cause of medicine in general.

The falling off in membership has been slight, to be sure, but any falling off, when there should be a gain, shows a tendency in the wrong direction. We should ascertain the cause and apply the proper remedy.

(3) Report of the Chairman of the Council, Dr. Frank K. Hallock (Middletown).

## Report of the Chairman.

Mr. President and Gentlemen of the House of Delegates:

The Board of Councilors of the Connecticut State Medical Society presents the following report for the year 1906-7.

On the last day of the annual meeting of this Society, May 24,

1906, the Councilors met for organization and the transaction of final business for the session. The late Dr. George R. Shepherd was re-elected chairman.

Dr. Walter R. Steiner was appointed editor of the Transactions and Memoirs, and Doctors N. E. Wordin and Wm. H. Carmalt as his assistants.

The appropriation of \$250 asked for as a contribution from this Society to assist in the erection of a memorial to Dr. N. S. Davis, founder of the American Medical Association, was fully discussed. The feeling prevailed that our Society should certainly do its part in furthering this worthy object, but owing to the lack of funds it was voted to lay the matter upon the table.

On account of the illness of our Chairman, Dr. Shepherd, which began last August, became serious in November, and finally terminated in his death on the 6th of April, this year, no meetings of the Council were held during this period. Since then, there being nothing of pressing importance brought to our attention, no meeting of the Board was held until last evening, May 21, 1907. Seven of the ten councilors met on this date, at the Hunt Memorial Building, and Dr. Frank K. Hallock was elected Chairman.

At this meeting the affairs of the Society were carefully gone over, and the following items, presented in the form of recommendations, were deemed worthy of your consideration:

First, to amend Sections 1 and 5 of Chapter VIII, by adding the words "and degrees" after the words "committee on honorary members." Our Society will probably never again grant a degree, but it has the right by charter to do so, and it seems wise to retain this power, although no purpose may be served other than the preservation of an historical fact.

Second, after Section 2, in Chapter VII, to insert the following, already passed and approved, but not incorporated in the by-laws, the same to be known hereafter as Section 3, to wit: "The Board of Councilors shall constitute the nominating committee of the

Society. They shall report as such to the House of Delegates on the first day of the general session. After the report has been submitted an opportunity shall be given for other nominations to be made."

Third, the Council recommends an appropriation from the general fund of the Society of a sum not to exceed \$35 to defray the traveling expenses of Dr. W. P. Spratling, superintendent of the Craig Colony for Epileptics, Sonyea, N. Y., in order that he may appear before the legislature in support of the bill to establish an epileptic colony in the state.

Your committee, which includes among its members the Special Commissioners on Epilepsy appointed by Ex-Governor Roberts, have, by the energetic efforts of our honored President, Dr. Higgins, been able to secure a favorable report upon the bill by the committee on humane institutions and it will soon come up for consideration by the committee on appropriations. It is highly important that Dr. Spratling, who is one of the foremost authorities in the country on epilepsy and the colony method of treatment, should be present at this hearing. If the bill passes, the Connecticut Medical Society will have added one more to the list of good works which grace and honor its own annals as well as those of our commonwealth.

Fourth, the Council recommend that the report of the Special Commission on Epilepsy, presented to the legislature now in session, be printed in the Proceedings.

Fifth, and finally, the Council recommend that the Society pay the bills of the committee on public policy and legislation, incurred in the prosecution of their duties.

The Chairman of the Council was instructed to prepare the following resolution as a tribute to the memory of Dr. Shepherd:

Whereas, We, the Board of Councilors of the Connecticut State Medical Society now convened in Annual Session, are forcibly and painfully reminded of the great loss we have sustained by the death of our late Chairman, Dr. George R. Shepherd, be it

Resolved, That we herewith record the deep appreciation, honor, and affectionate regard in which this beloved physician was held. We recall with interest the first meeting of this Board of Councilors when with one accord and a sense of joyous privilege he was chosen its first chairman. Then followed the various meetings in which under his kind and tactful leadership the new duties and work of the council were systematically organized and perfected. Our minds will forever cherish the picture of this gentle, yet firm and earnest man performing with zeal and remarkable effectiveness the tasks that lay before him. Truly this Board of Councilors and our society as a whole, this community and the entire state may well feel proud of the life and record of this good man — George Rubens Shepherd.

Resolved, That this resolution be spread upon the minutes of this Society and that a copy of the same be transmitted with united and sincere sympathy to his widow and family.

Eight hundred and fifty volumes of the Transactions for 1906 have been distributed to members of this Society and to all others entitled to receive them. Twenty volumes remain on hand in possession of the Secretary. The total cost of printing and distributing this issue of the Transactions has been \$958.66. The Secretary has under his care about 900 volumes of the Transactions of former years, which are stored in the Hunt Memorial in Hartford.

The sum of \$89.60 was expended for general printing and stationery in conducting the affairs of the Society. The printing of the vaccination pamphlets for the committee on vaccination amounted to \$37.55.

The salary of the Secretary for the past year was fixed at \$150.00, the same amount as paid the previous year.

The accounts of the Treasurer have been audited and are found correct, with a balance on hand of \$1,680.58, and taxes due and uncollected \$360, as against \$565 for last year.

The Board would advise a tax of \$3.00 per member for the ensuing year.

As the nominating committee we present the following nominations:

#### NOMINATIONS.

President.

E. J. McKNIGHT, Hartford.

Vice-Presidents.

F. P. CLARK, Danbury. M. C. HAZEN, Haddam.

Secretary.

W. R. STEINER, Hartford.

Treasurer.

J. H. TOWNSEND, New Haven.

Committee on Scientific Work.

Leonard W. Bacon, Jr., New Haven, F. M. Wilson, Bridgeport, The Secretary.

Committee on Medical Examinations and Medical Education. H. S. Fuller, to succeed himself.

Committee on Public Policy and Legislation.

P. H. Ingalls, Hartford, C. S. Rodman, Waterbury,

J. W. Wright, Bridgeport,

Elias Pratt, Torrington, S. B. Overlock, Pomfret,

John G. Stanton, New London, C. E. Stanley, Middletown,

E. P. Flint, Rockville.

Committee on Honorary Members and Degrees.

O. G. Ramsay, New Haven, T. F. Rockwell, Rockville, Wm. Bissell, Lakeville.

Delegates to American Medical Association:

W. H. Carmalt, New Haven, for one year.

D. C. Brown, Danbury, for two years.

## Delegates to State Associations:

#### Maine.

M. M. Johnson, Hartford, W. W. Hawkes, New Haven.

#### New Hampshire.

W. B. Coggeswell, Stratford, F. M. Loomis, Derby.

#### Vermont.

R. C. White, Willimantic, E. T. Davis, Ellington.

#### Massachusetts.

W. S. Hulbert, Winsted, C. E. Munger, Waterbury.

#### Rhode Island.

J. H. Kingman, Middletown, F. A. Morrell, Putnam.

#### New York.

Jean Dumortier, South Norwalk, C. D. Alton, Hartford.

#### New Jersey.

E. P. Linsley, New Haven, C. C. Beach, Hartford.

#### Pennsylvania.

G. R. Harris, Norwich, F. I. Nettleton, Shelton.

#### Respectfully submitted,

#### FRANK K. HALLOCK.

The President: I desire to state that according to our by-laws the nominations will lie on the table until tomorrow, when they will be acted upon by the House of Delegates, and opportunity will be given, at that time, for any member of the House of Delegates to present other nominations. What action do you wish to take concerning the suggestions and recommendations in the reports of the Chairman and Secretary? In previous years a committee has been appointed for this purpose. If it is your pleasure that

such a committee be appointed at this meeting, will someone please put it in the form of a motion?

Dr. Joseph H. Townsend (New Haven): I move that a committee be appointed by the Chair to consider the suggestions and recommendations in the reports of the Chairman of the Council and the Secretary. Motion adopted.

The President: I would nominate as that committee Dr. W. S. Kingsbury (Glastonbury), Dr. Theodore R. Parker (Willimantic), and Dr. Francis I. Nettleton (Shelton).

(4) Reports of the Councilors from the different counties in the state:

## Reports of the Councilors.

(a) Hartford County, by Dr. Oliver C. Smith:

Mr. President and Gentlemen of the House of Delegates:

The Hartford County Medical Association has suffered an irreparable loss during the year which has just passed in the death of one of its most honored and beloved members, your Councilor, Dr. George Rubens Shepherd. An obituary will be prepared for this Society by one thoroughly familiar with Dr. Shepherd's life and work, but this report would be sadly lacking if reference was not made to the beautiful character which has gone from among us, after long years of conscientious devotion to humanity, to his profession, and to this and kindred societies.

Dr. Shepherd was an exemplary man, progressive, receptive, and scientific in his work; glorying in the advances and achievements of his profession, yet tender and tactful and true in his ministrations—a rare physician, a loyal friend, and a brave Christian gentleman.

This Association has suffered further loss in the death of two of its older members, Dr. Franklin Wheeler and Dr. Henry A. Carrington, both of Farmington. They were men of sterling character and were respected and beloved alike by the community and the profession.

During the year four members have removed and three who had ceased to continue their interest have been dropped.

We have elected 12 members, and now have the largest enrollment in our history, namely, 198.

It is a pleasure to report to your body that the affairs of the Hartford County Medical Association were never so prosperous. Our two meetings during the past year have enjoyed an average attendance of 85. The character of the papers and discussions has been of a high order, and the professional amenities which this county and this county seat have enjoyed so long are more strongly cemented than ever in our history.

The success of our meetings has been largely due to the zeal and energy of our President, Dr. Frederick S. Crossfield, and our Secretary, Dr. Edward R. Lampson. It is one of the encouraging signs of the times that the members of our Association are organizing local societies in their various communities.

Let us hope that this work will expand, for nothing can so promote the scientific acumen, the individual and general interests of the medical man as frequent professional intercourse.

## (b) New Haven County, by Dr. Charles J. Foote:

## Mr. President and Gentlemen of the House of Delegates:

The membership of the New Haven County Medical Society last year numbered 224. The Society has had two successful meetings, with an attendance at the October meeting of 70, and at the April meeting of 100. Both meetings were of considerable scientific interest. The April meeting, instead of being held at either New Haven or Waterbury, as hitherto, was held at the Waverley Inn, Cheshire. The location, combined with an attractive literary programme, drew a much larger attendance than usual.

One of the problems confronting the New Haven County Medical Society has been the arrearages in unpaid dues. These amounted last year to \$500. A committee was appointed last October to inquire into this condition and to suggest a remedy. The recommendations of this committee were adopted at the April meeting. The committee recommended that the names of members whose dues were three years in arrears should be read at the meeting, that the bills should be placed in the hands of a collector, and that all who did not pay their indebtedness by May 15th should be dropped from membership. As a result of this vote, twenty members were dropped from membership on May 15th.

At the same meeting an amendment to the constitution was adopted. This amendment attaches the penalty of suspension to those who neglect to pay their dues. The suspended member is not allowed to take part in the business meetings of the Society or to hold any office in the Society until his dues are paid. As a result of this amendment, four members were suspended.

This loss of membership has been increased by the deaths of five members and suggests the possibility that New Haven County Medical Society may lose one of its representatives in the House of Delegates.

Respectfully submitted,

CHARLES J. FOOTE,
Councilor for New Haven County.

#### (c) New London County, by Dr. Rush W. Kimball:

Mr. President and Gentlemen of the House of Delegates:

The duties of Councilor in New London county during the past year have not been exacting, but I am happy to say that there are signs of an awakening. Norwich and New London each have a city medical organization which is a pronounced success, and I see no reason why the County Association should not be equally successful.

There is a necessity of reorganization, to bring the old constitution and by-laws up to date. At the April meeting, held in Norwich, a committee was appointed to bring the meetings up to date. Extra effort should be made to increase the membership.

The present membership is 57. There are about 85 regular practitioners, making 28 outside the Society.

Aside from the question of reorganization, there is nothing to report except the general routine of the regular meetings. There has been no occasion to act as censor or peacemaker.

# RUSH W. KIMBALL, M.D., Councilor for New London County.

## (d) Fairfield County, by Dr. Gould A. Shelton:

Mr. President and Gentlemen of the House of Delegates:

Fairfield county again comes to you, through its Councilor, with a report telling of continued progress, a commendable degree of energy, and an encouraging state of medical activity.

So filled with professional rectitude are the members of our county, that no difficult or even easy problems have been referred to its Councilor for solution. Frequent reports from the outstanding posts and different sections of "Old Fairfield" have told me of no contentions, beyond those which contribute to its healthful growth.

Much interest was centered in the semi-annual meeting at Greenwich, where the local society gave us a hearty welcome, ably represented by that true leader, Doctor Leander P. Jones. In the passing away of this scholarly gentleman from the activities of today we can appreciate only in part how much valued strength has been taken from our profession in Fairfield county. The annual meeting was also well attended, the interest in the well-being of the Society especially marked, and its literary feature of superior order and worth.

Our county is favored with no less than five local Associations, which hold their meetings with sufficient frequency to maintain a healthful interest. In these Associations many valuable papers are presented, which should be heard beyond their own limited boundaries. It has been suggested, and with no little degree of reason, that there should be, as it were, a reciprocity in the literary

work that would bring an interchange of these papers between the several local Associations. This plan would not only become valuable to the members, but help to strengthen the bond of harmony that is always desirable. The local Association naturally furnishes a stimulus to the County Associations, as they in turn uplift the State Society.

While our Secretary records an increase in new members, his statistics show that only fifty per cent. of the whole number in the practice of medicine in our county are enrolled with us. Of those non-affiliating there surely must be some desirable material to gather to ourselves. To accomplish this the task is not an easy one, yet your Councilor will still put forth every reasonable effort to lessen the number outside and swell the number within the lines of associated membership.

It is a pleasing fact, and worthy of note, that many of our members have given much time and individual effort in "rounding up" the members who seemed to have lapsed into the state of professional lethargy and commercialism, and have succeeded in restoring many to satisfactory membership.

One prominent official going out into a field of twenty-five delinquents, restored to membership, through his persuasive argument and commendable missionary effort, all of them with the exception of eight. It is to be hoped that the Councilor for 1908 will bring to the County Association much of the desirable material that has not yet been reached.

Our open door to membership has brought to us a number of excellent men from an "Exclusive System of Medicine," whose promise for good fellowship is quite gratifying.

It is a matter of great regret that we have been unable to record the accustomed visitation of the President of the State Society at our meetings, and extend to him the warm welcome which we had in store for him.

Respectfully submitted,

GOULD A. SHELTON,

Councilor.

Shelton, Conn., May 21, 1907.

The President: Before calling upon the next Councilor for his report I feel it is incumbent on me to say that when I should have been attending the semi-annual county meetings, in the different parts of the state, I was looking after my political fences, and this spring, when the annual meetings were held, I had business on Capitol Hill as important to the Connecticut State Medical Society as attending the different annual meetings. I exceedingly regret my inability to attend these meetings.

#### (e) Windham County, by Dr. Frank E. Guild:

## Mr. President and Gentlemen of the House of Delegates:

It is with pleasure I can report the continued prosperity of our County Society. We have lost no member by death during the year and only one by removal. This has been balanced by one addition, leaving the number 36, same as the previous year. Two meetings were held, one November 8th, at Danielson, the other April 25th, at Willimantic. Both were well attended and were well up to the standard of the previous year. It is with regret that we have to report the absence of the State President from both meetings, thus interrupting the custom established by the two previous administrations. We hope the coming year may, in this respect, be a more fortunate one.

The one suggestion we would make is this: That each county not only *appoint* delegates to attend the meetings of the other counties, but see to it that it is represented at these meetings by its delegates, thereby fostering more intimate relations between the counties.

F. E. GUILD,

Councilor for Windham County.

## (f) Litchfield County, by Dr. Edward H. Welch:

## Mr. President and Gentlemen of the House of Delegates:

As Councilor of the Litchfield County Medical Association, I am glad to report that our condition as an association fully coincides with our climatic conditions in Litchfield county, which are always above par.

Our Association has amended its by-laws to coincide with those of the State Society.

You can depend upon the Litchfield County Association to carry forward the helpful suggestions of the State Society.

E. H. WELCH, Councilor for Litchfield County.

## (g) Middlesex County, by Dr. Frank K. Hallock:

Mr. President and Gentlemen of the House of Delegates:

Medical affairs in Middlesex County have progressed satisfactorily during the past year. The two meetings of the County
and the monthly meetings of the Central Medical Association have
been well attended and the members, by their papers and discus
sions, have exhibited a gratifying interest and enthusiasm in their
professional work. To my knowledge no personal dissensions have
arisen; on the contrary, a spirit of good will and mutual friendliness prevails throughout the county.

The Middlesex Hospital at Middletown, the new general hospital for the county, is constantly growing in favor. An increasing number of patients are treated and the evidence of interest and substantial support on the part of the citizens of the county indicates a successful career for the institution.

The Central Medical Association, whose membership comprises the physicians of Middletown and vicinity, have been successful this spring in educating the public to a new fee table. An increase in the rate of charge for professional services had long been needed and the cheerful acquiescence in the payment of larger fees attests most pleasantly the justice of the physicians' claim.

This society has also inaugurated a movement to admit to its membership physicians belonging to other so-called schools of medicine. It may not be wise, at present, to receive such physicians in this or in the County Association, but it certainly is increasingly evident that in due time they will be admitted, provided they subscribe to the by-law of the American Medical Association which states that "every reputable and legally registered

physician who does not practice or claim to practice or lend his support to any exclusive system of medicine shall be entitled to membership."

In my report last year mention was made of the fact that a few members of our County Association were engaged in society contract work. I am happy to state that by kindly entreaty all have agreed to abandon this undesirable, unethical method of practice.

Respectfully submitted,

## FRANK K. HALLOCK,

Councilor.

Cromwell, May 22, 1907.

(h) Tolland County, by Dr. Cyrus B. Newton:

(Read by Dr. Walter R. Steiner, in the absence of Dr. Newton.)

Mr. President and Gentlemen of the House of Delegates:

I have to report as Councilor for Tolland county that there is a harmonious condition among the members of our Society.

I have nothing of especial importance to report.

With hardly an exception, the physicians of the county are members of our County Society. I find there is commendable zeal among the members in all matters concerning the interest of the profession. I find no cases of delinquents in the matter of the payment of the annual tax.

As yet no question of an ethical nature has been referred to me as Councilor or censor.

No case has been referred to me for action.

Our semi-annual meetings are always well attended, with the usual interest.

C. B. NEWTON,

Councilor.

Stafford Springs, May, 1907.

(5) Report of the Treasurer, Dr. Joseph H. Townsend (New Haven), to the Connecticut State Medical Society, for the year ending May 23, 1907:

## Report of the Treasurer.

## RECEIPTS.

Balance from old account,						\$929.61
Dr. B. Austin Cheney, and	nive	rsary	chr.,			124.00
Cash from County Clerks	:					
Hartford county,					\$435.50	
New Haven county,					747.26	
Fairfield county, .					427.50	
New London county,					156.60	
Middlesex county,					102.60	
Windham county,					75.60	
Litchfield county,					188.25	
Tolland county, .					48.60	
•				-		
Total receipts fr	om	taxes	, .			2,182.91
						<u></u>
						\$3,235.52
		PENSI				
Expenses of annual meet			banq	uet,	4	
1906,	•	•	•	•	\$253.25	
Stenographer,		•		٠	50.00	
Proceedings, printing and	dis	tribut	ing,		958.66	
Printing and stationery,		•	•	•	89.60	
Postage,					9.31	
Telephone, cartage, etc.,					14.12	
Salary of Secretary, .					150.00	
Salary of Treasurer, .						
Dailer, Or 2 ross					25.00	
Treasurer's bond, .					25.00 5.00	
•				•		
Treasurer's bond, .			•	•		\$1,554.94
•			•	•		
Treasurer's bond, .				•		\$1,554.94

## ARREARS IN TAX LAID MAY 23, 1906.

Hartford county,						\$60.00
New Haven county,						171.00
Fairfield county,						60.00
New London county,						18.00
Middlesex county,						none
Windham county,						24.00
Litchfield county,						27.00
• 1						none
					_	
Total, .					•	\$360.00
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Respectfully submitted,

## JOSEPH H. TOWNSEND,

Treasurer.

(6) Report of Committee on Public Policy and Legislation, by Dr. Everett J. McKnight (Hartford).

## Report of Committee on Public Policy and Legislation.

Mr. President and Gentlemen of the House of Delegates:

In accordance with the vote passed at the last meeting of the House of Delegates authorizing the Committee on Public Policy and Legislation "to select some attorney who shall be considered the attorney of the Society in all cases where legal advice is needed," your committee, after consultation with Mr. Chas. E. Gross, selected Mr. Hugh M. Alcorn to fill this position, and desires at this time to express their appreciation of the services which he has rendered. At the last annual meeting of the Society it was recommended that the Committee on Public Policy and Legislation be instructed to present to the legislature a bill concerning proprietary medicines and the adulteration of food. A bill was prepared and introduced into the general assembly to which at first there was considerable opposition, but the Connecticut Pharmaceutical Association has prepared a substitute bill closely modeled after the national law which is now before the

assembly and which will unquestionably be enacted. As certain changes were deemed necessary in the Medical Practice Act, a bill (House Bill No. 736, a copy of which is attached to this report), drafted by the chairman of the Committee on Medical Examinations and the attorney of the Society, was introduced into the general assembly and has been acted upon favorably by both houses.

Fifteen hundred copies of "Facts About Smallpox and Vaccination," 25 copies of a reprint of the issue of the British Medical Journal for July, 1902, and 1,500 copies of "Reasons why the Vaccination Law should not be Repealed" were received from the Committee to Prepare a Pamphlet on Vaccination. Early in the session each member of the committee was requested by the chairman to forward to him the names of the family physician of each senator and representative in his county, as far as possible. With two exceptions the work was most excellently done, and the chairman was in this way enabled to present the vaccination pamphlets to the majority of the members of the general assembly under the most favorable conditions. A circular letter and copies of the pamphlets were sent to each family physician, so far as ascertained, and copies of pamphlets sent to every legislator whose family physician was not known. In addition to this, copies were sent to every member of the Society. This was done after the anti-vaccinationists had fired their ammunition and at a time when it seemed it would be productive of the greatest good. The following bills relating to vaccination were introduced by the anti-vaccinationists during the session:

House Bill No. 198. Section 1. That hereafter it shall be unlawful for any board of health, board of education, or any other public board acting in this state under police regulations or otherwise, to compel by resolution, order, or proceedings of any kind the vaccination of any child; or making vaccination a condition precedent to the attendance at any public or private school in the state of Connecticut.

Section 2. This act shall take effect upon approval.

House Bill No. 200. That Section 2161 of the General Statutes be and the same is hereby repealed.

House Bill No. 741. Any person practicing medicine who shall inoculate any person with vaccine virus as a prophylactic and preventative against smallpox, shall be liable to such person in damages for any injuries which such person may sustain as the result of such vaccination.

At the hearing on these bills before the Committee on Public Health and Safety, on March 28, 1907, the following gentlemen spoke in opposition to the bills, in the order named:

Dr. E. J. McKnight.

Dr. Winford H. Smith, Superintendent Hartford Hospital.

Professor Brewer, Yale University.

Dr. J. H. Townsend, Secretary State Board of Health.

Dr. W. R. Steiner.

Mr. Hugh M. Alcorn.

On account of the illness and death of one of the members of said Public Health and Safety Committee, action on these bills was deferred, and they were not reported until last week, at which time a minority report was introduced and signed by two members of the committee. That the work done by your committee has had some influence upon the members of the legislature is shown by the many letters received by the chairman, similar to the one here quoted:

Dear Doctor:

The pamphlets on vaccination sent me were given to our representative, Mr. ————.

Mr. ——— was mildly opposed to vaccination. Had, by request of an anti-vaccinationist, circulated a paper for petitioners to have the proposed laws passed.

I went over the matter quite thoroughly with him and left him convinced that vaccination was a safe and necessary thing. How he will vote I cannot tell you, but feel quite sure that he will oppose the new bills.

Very truly yours,

This is only a single illustration, but shows what can be accomplished when the physicians of the state do their part in assisting the Committee on Public Policy and Legislation in carrying on their work. Reprints of an editorial on vaccination which appeared in the Yale Medical Journal for this month, a copy of which is attached hereto, were distributed to the members of the legislature in the hope of continuing the work which the special pamphlets on vaccination were designed to accomplish.

The expense incurred in carrying out this work has been considerable. The total cost of the pamphlets obtained from the British Medical Association and those printed by the Committee to Prepare a Pamphlet on Vaccination was \$105.99; letter heads and printing of same, \$15.00; stationery and stamps, \$39.21; making a total of \$160.20.

After the work was commenced it seemed impracticable to meet this expense by collections made by the members of the Committee on Public Policy and Legislation, as outlined at the last meeting of the House of Delegates, not only because it would be difficult to secure the payment of any given sum by each member of the Society, but because it did not seem right to impose this burden upon the members of the committee in addition to the other duties they had to perform. After consulting with the executive officers of the Society it was decided to leave this matter for the consideration of the Council at the present session. Your committee recommends that a committee be appointed by the incoming President to devise some means of forming an association composed largely of laymen to take charge of this and other similar matters, as this is a matter of public utility, not one for the benefit of the medical profession.

E. J. McKNIGHT,
C. S. RODMAN,
JOHN G. STANTON,
SELDON B. OVERLOCK,
ELIAS PRATT,
CHESTER E. STANLEY,
ELI P. FLINT,

Committee on Public Policy and Legislation.

An Act amending an Act concerning the Practice of Medicine, Surgery, and Midwifery.

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Section 1. Section 4714 of the General Statutes is hereby amended by striking out in the eleventh line thereof the word "assist" and inserting in lieu thereof the words "render temporary assistance to" and by striking out, commencing in the seventeenth line, the words "nor to any actual resident of this state recommending by advertisement or otherwise the use of the proprietary remedies sold under trade-marks issued by the United States government, in so far and to such extent only as the use of such remedies are concerned," so that said section as amended shall read as follows: No person shall, for compensation, gain, or reward, received or expected, treat, operate, or prescribe for any injury, deformity, ailment, or disease, actual or imaginary, of another person, nor practice surgery or midwifery, until he has obtained such a certificate of registration as is in section 4715 provided, and then only in the kind or branch of practice stated in said certificate; but this chapter shall not apply to dentists while practicing dentistry only; nor to any person in the employ of the United States government while acting in the scope of his employment; nor to any person who shall furnish medical or surgical assistance in cases of sudden emergency; nor to any person residing out of this state who shall be employed to come into the state to render temporary assistance to or consult with any physician or surgeon who has been registered in conformity with the provisions of this chapter; nor to any physician or surgeon then actually residing out of this state who shall be employed to come into this state to treat, operate, or prescribe for any injury, deformity, ailment, or disease from which any person is suffering at the time when such nonresident physician or surgeon is so employed; nor to any chiropodist or clairvoyant who does not use in his practice any drugs, medicines, or poison; nor to any person practicing the massage method, or Swedish movement cure, sun cure, mind cure, magnetic healing, or Christian science; nor to any other person who does not use or prescribe in his treatment of mankind drugs, poisons, medicines, chemicals, or nostrums.

Section 4715 of the General Statutes as amended by Chapter 71 of the Public Acts of 1903 is hereby amended by inserting after the words "legally incorporated" in the seventeenth line of said section as amended the words "and reputable"; by inserting after the words "medical college" in the same line the words "as determined by the provisions of Section 4718 of the General Statutes, nor until he has presented to said committee a certificate of good moral character signed by two reputable citizens of this state, and also satisfactory evidence that, before beginning the study of medicine, he was graduated from a college, high school, or preparatory school whose standing shall be approved by said committee, or that his preliminary education is equivalent From and after January 1, 1912, no person shall be eligible to examination under this act until he shall, in addition to the foregoing requirements, present to said committee satisfactory evidence that, before beginning the study of medicine, he has completed a course of study of at least nine months' duration which included chemistry, physics, and general biology"; and by adding at the end of said section the following: "Each of said examining committees shall file with the state board of health, within thirty days after the close of each examination, a list of all applicants examined by it since the last previous examination. Said list shall also indicate whether each applicant passed or failed to pass such examination," so that said section as amended shall read as follows: No person shall obtain a certificate of registration as in section 4714 required until he has passed a satisfactory examination before one of the examining committees appointed for the purpose by the State Board of Health, except as hereinafter provided, nor until he has, filed with said board duplicate certificates signed by a majority of said examining committee, stating that they have found him qualified to practice either medicine, surgery, or

midwifery, nor until he has filed with said board duplicate statements subscribed and sworn to by him upon blanks furnished by said board, giving his name, age, place of birth, and present residence, stating of what medical college he is a graduate, and the date of such graduation, together with such other information as shall be required by said blanks. No person shall be eligible to said examination until he presents to the committee by whom he is to be examined, satisfactory evidence that he has received a diploma from some legally incorporated and reputable medical college as determined by the provisions of section 4718 of the General Statutes, nor until he has presented to said committee a certificate of good moral character signed by two reputable citizens of this state, and also satisfactory evidence that, before beginning the study of medicine, he was graduated from a college, high school, or preparatory school whose standing shall be approved by said committee, or that his preliminary education is equivalent thereto. From and after January 1, 1912, no person shall be eligible to examination under this act until he shall, in addition to the foregoing requirements, present to said committee satisfactory evidence that, before beginning the study of medicine, he has completed a course of study of at least nine months' duration which included chemistry, physics, and general biology. Any one of the examining committees appointed under the provisions of section 4716 may accept the license of any state board of medical examiners of any state in the United States or in the District of Columbia in lieu of said examination, provided the applicant shall present such license to the examining committee before whom he appears, together with satisfactory evidence that such license has been issued after a state examination of as high a grade and of the same kind as that required by said examining committee, that he is a resident of this state or that he intends in good faith to permanently reside herein, that he has been in actual practice for a period of at least six months in the year immediately preceding the date of his application, and that he is of good moral character and professional standing; and upon the payment to said committee of the sum of fifteen dollars he may receive a certificate of the approval of such license by said examining committee. Any person passing such examination or obtaining such certificate of approval and filing said certificates and statements shall receive from said State Board of Health, upon payment of two dollars, a certificate of registration, which shall state that the person named has been found qualified so to practice. Each of said examining committees shall file with the State Board of Health, within thirty days after the close of each examination, a list of all applicants examined by it since the last previous examination. Said list shall also indicate whether each applicant passed or failed to pass such examination.

Sec. 3. Section 4716 of the General Statutes is hereby amended by adding at the end thereof the following: "Said committees shall be known as the Connecticut Medical Examining Board, the Connecticut Homeopathic Medical Examining Board, and the Connecticut Eclectic Medical Examining Board," so that said section as amended shall read as follows: The Connecticut Medical Society, the Connecticut Homeopathic Medical Society, and the Connecticut Eclectic Medical Society shall each annually in December file with the State Board of Health the name of one physician, practicing in this state, who shall have been recommended by such medical society as a person competent to serve upon one of the examining committees appointed by the State Board of Health, as specified in Chapter 158 of the Public Acts of 1893; and in case any vacancy occurs upon any of said examining committees, the president of the society of whose members said committee is composed shall nominate such a person to fill said vacancy. Annually in January the State Board of Health shall appoint one member of each of said committees, who shall have been nominated for such office as aforesaid, to serve five years; and said board shall in the same manner fill any vacancy occurring in any of said committees. Said committees shall be known as the Connecticut Medical Examining Board, the Connecticut Homeopathic Medical Examining Board, and the Connecticut Eclectic Medical Examining Board."

Sec. 4. Section 4718 of the General Statutes as amended by Chapter 71 of the Public Acts of 1903 is hereby amended to read as follows: The said examining committees shall hold examinations on the second Tuesdays of March, July, and November of each year, at such places as they may designate, and at such other times and places as they shall determine. Applicants for certificates to practice medicine or surgery shall be examined in anatomy, physiology, medical chemistry, obstetrics, hygiene, surgery, pathology, diagnosis, therapeutics, practice, and materia medica. Each committee shall frame its own questions and conduct its examinations in writing, and both questions and answers shall be filed with and preserved for at least six years by the State Board of Health. Each of said committees shall make such rules and regulations for conducting said examinations and the furtherance of the spirit of this act as, from time to time, it shall deem necessary. Every applicant for examination under the provisions of this act shall be examined by the committee representing the same school of practice in which the applicant was graduated; but before taking such examination he shall pay to the committee the sum of fifteen dollars; provided, that the fee for examination in midwifery alone shall be ten dollars. An applicant rejected by an examining committee may be re-examined by the committee before whom he appeared, at any subsequent meeting of said committee. Upon the receipt of any duplicate statements as in section 4715 provided, the State Board of Health shall transmit one of said duplicate statements, together with a duplicate of the certificate of registration in each case, to the town clerk of the town wherein the person so filing said statement resides; and in case such person does not reside in the state of Connecticut, the State Board of Health shall transmit said statement and certificate to the town clerk of the town in this state nearest to the place of residence of such person; and said town clerk shall record the same in a book to be provided for that purpose by the State Board of Health, and shall then return the same to the person who filed the same with the Board of Health; and said town clerk shall receive for such recording a fee of twentyfive cents, to be paid by the State Board of Health out of the amount so paid to it as aforesaid. The secretary of each of said medical societies shall file annually with the secretary of the State Board of Health a list of medical colleges or institutions recognized as legal and reputable by his society; or all of such secretaries may agree upon a single list; and such list or lists may be corrected as may be necessary.

## VACCINATION.

(Reprinted from the Yale Medical Journal, May, 1907.)

It is almost beyond comprehension that any intelligent person at the present time should question the efficacy of vaccination. At each session of our legislature, however, bills are introduced to repeal our excellent vaccination laws. That it should occasionally occur that certain individuals should form erroneous opinions in regard to this as well as other matters is not to be wondered at, for as good men as Professor Crokshank have completely lost their heads in an investigation of this subject. When, however, such people, by garbled statistics and misrepresentations, poison the minds of a large number of intelligent citizens and make them believe that vaccination really is the curse it is claimed to be, the time has come when all intelligent citizens, physicians and laymen should put forth every effort to counteract these injurious influences. The anti-vaccinationists consider personal opinions as established facts. That was the case of Dr. Alfred Russell Wallace, from whose work, "The Wonderful Century," the anti-vaccinationists draw a large part of their material. Before the Royal Vaccination Commission in 1890, Wallace was obliged to retreat step by step and finally when the suggestion was made by the commission "that he must have taken up this subject and written upon it without full and accurate information befitting a man of science," made the frank admission, "My answer is that I did not take it up as a question of pure science." At no time in the history of vaccination has there been so little ground for opposition as at present. When it was performed by the arm to arm method

there certainly was great danger of the transmission of disease from one person to another. A recently enacted law places the inspection and control of vaccine manufactories in the hands of the Public Health and Marine Hospital service. Virus is from time to time bought in the open market and subjected to the most rigid examination as to its purity and efficacy. Frequent inspection of all vaccine farms is insisted upon and no firm can continue the manufacture of vaccine virus unless it complies with the requirements laid down by said Public Health and Marine Hospital service. The calf is immune to erysipelas and syphilis; tuberculosis is eliminated by rigid inspection of all animals used and tetanus can only be produced by faulty technique at the time of the vaccination or in the after-treatment of the sore. Numerous supreme court decisions both in this and other states uphold the constitutionality of our vaccination laws. The late Chief Justice Torrance in giving an opinion in regard to the constitutionality of the law prohibiting unvaccinated children from attending school, says: "It does not authorize or compel compulsory vaccination; it simply requires vaccination as one of the conditions of the privilege of attending the public school." If this act interferes with the law requiring children between certain ages to attend school, the latter certainly is the one which should receive the attention of our law makers. The Anti-vaccination Society has spread broadcast numerous publications containing statements which are not founded upon fact, but which have had a marked effect upon the attitude of members of the general assembly. The Committee on Public Policy and Legislation of the Connecticut State Medical Society has been obliged to incur considerable expense in an endeavor to put the people of the state in possession of the truth in regard to this subject. It is to be hoped that before another session of our legislature there will be an association formed, composed largely of laymen, which can take this subject in hand, as this is a matter of public utility - not one for the benefit of the medical profession.

#### DISCUSSION.

The President: I think it has been customary to appoint a committee of three to consider the recommendations of this report. Do you wish to take any such action?

Dr. O. C. Smith (Hartford): I move a committee of three be appointed by the chair to consider the recommendations contained in the report of the chairman of the committee on Public Policy and Legislation. Motion adopted.

The President: I will appoint on this committee Dr. George R. Harris (Norwich), Dr. Arthur B. Coleburn (Middletown), and Dr. Louis M. Gompertz (New Haven).

(7) Report of Committee on Medical Examinations and Medical Education, by Dr. C. A. Tuttle (New Haven).

# Report of Committee on Medical Examinations and Medical Education.

(Read by the Secretary in the absence of Dr. Tuttle.)

Mr. President and Gentlemen of the House of Delegates:

Your Committee upon Medical Examinations and Medical Education presents herewith its fourteenth annual report in the first capacity and its first annual report in the second.

We have conducted, in accordance with the law, three examinations, each extending over two days, and have held three special meetings, all in New Haven. There have been examined 90 candidates for certificates of qualification in general practice, of whom 67 have fulfilled requirements; 23, or 25.5 per cent., were unqualified and certificates withheld. There have also been examined 14 in midwifery and 6 only (less than half) found competent.

The committee has done a considerable amount of work this year with Mr. Alcorn, in preparing for the Committee on Public Policy and Legislation the much needed amendments to our Medical Practice Act. We are pleased to learn from Mr. Alcorn that all the amendments asked for have been granted and are now a part of the statutory requirements of Connecticut. It is fair to say that the medical law of this state is today as good and its re-

quirements are as high as in any state in the Union — and very much higher than many. A part of the amendments make for a better working of the law itself and a part for the advancement of medical education and requirements in this state.

The committee has given some attention this year, also, to aiding in preparing evidence for prosecution of violations of the law. We have secured, through the efforts of Dr. Fuller, indorsed unanimously by the committee, the revocation of the license of Dr. C. E. Harvey, 1161 Main Street, Hartford, he having been convicted of a felony; and we have pending three other cases — one for practicing without a license, or any medical education whatever, and two for perjury, both having made oath that they were graduates of an Italian medical college, the record of the college failing to confirm their statements.

At the annual meeting of the New England Confederation of Medical Licensing and Examining Boards in Boston, Dr. Garlick, read, as a part of a symposium, an interesting paper upon the "Effect of the Work of Medical Examining Boards upon the Medical Profession." Three members of your committee attended, Dr Fuller, Dr. Garlick, and the secretary, and one former member, Dr. Wright of Bridgeport. The secretary was elected president of the confederation, and at the meeting of the A. M. A. in June last was made a member of the executive council of the national confederation.

With this year ends a fourteen years' continuous service on this committee of Dr. Fuller — years full of devotion to the good of the work of the committee and the advancement of medical education in the state. He has worked diligently and unceasingly for all that was highest and best and it is conservative to say that he has done more for our state and our standards in medical examinations than any other person, past or present.

Respectfully submitted,

CHAS. A. TUTTLE,

Secretary.

Qualified in July, 1906.

Cramp, W. C., P. & S., N. Y., 1904

Molumphy, D. J., Jeff., 1906.

Blake, E. M., Yale, 1906.

Tuch, M., Univ. & Bell, 1906.

Carroll, J. F., Balt. Med., 1906.

Peterson, D. C., P. & S. (Balt.), 1906.

Strong, L. W., Harvard, 1896.

Ingraham, C. B., Jr., Johns Hop., 1906.

McCarthy, T. W., Balt. Med., 1906.

Russell, E., Univ. of Pa., 1904.

Sanford, C. E., Yale, 1906.

Risley, E. H., Harvard, 1906.

Merriman, H., P. & S., N. Y., 1906.

Potts, J. H., Dart., 1905.

Barnett, W. M., Jeff., 1906.

Hackett, J. F., McGill, 1906.

Howland, D., P. & S., N. Y., 1906.

Harrington, R. E., Balt. Med., 1906.

Hawley, J. P., Cornell, 1906.

Black, R. E., P. & S., N. Y., 1905.

Conklin, W. H., P. & S., Balt., 1906.

Hufert, F., Vienna, 1902.

Cooney, M. E., Yale, 1906.

Elmes, F. A., Yale, 1905.

Gaucher, J. I., L. I. Col. Hosp., 1906.

Barr, W. H., Jeff., 1906.

## In November.

Lord, S A., Harvard, 1894.

Giamarino, H. J., Balt. Med., 1906.

Brennan, D. E., Georgetown, 1905.

McCarthy, D. J., P. & S. (Balt.), 1906.

Lawlor, M. J., P. & S., N. Y., 1906.

Phillips, F. L., Yale, 1906.

Scofield, J. F., Yale, 1906. Spicer, E., Yale, 1905. Blumer, G., Cooper Med., 1891. Greenstein, M. J., Univ. of South, 1905. Hathaway, C. M., Balt. Med., 1903. Hoyt, H. E., Albany Med., 1904. Carey, W. B., Univ. of Md., 1906. Wrinn, T. A., Yale, 1904. Murphy, C. C., Yale, 1906. Cortanyo, P. & S. (Chicago), 1906. Bevans, F. F., Univ. of Minn., 1903. Blair, E. H., P. & S., Balt., 1906. Levy, G. H. B., Jeff., 1895. O'Brien, D. J., Md. Med., 1897. Burwell, W. B., G. Washington, 1906. Mullins, S. F., Univ. & Bell., 1906. Hepburn, T. N., Johns Hopkins, 1905. Conway, W. H., Balt. Med., 1905. Bedford, A. L., Cornell, 1905.

## In March, 1907.

Parker, W. J., Yale, 1906.
Lubert, H. F., Med., Chi., 1904.
Martelli, H. A., Johns Hop., 1905.
Mooney, J. J., Owen's, 1892.
Holbrook, B., Univ. of Pa., 1899.
Vollmer, J. W., Yale, 1906.
Treat, W. H., Yale, 1906.
Arlt, F. W., Bell., 1906.
Denne, T. H., Univ. of Vt., 1905.
Nemortin, J., P. & S., N. Y., 1905.
Quinn, J. F., Balt. Med., 1906.
Rogers, J. F., Yale, 1905.
Delacroix, N. Y. Univ., 1892.
Robertson, C. W., Dart., 1907.

#### ANATOMY.

(Two hours.)

- 1. The entire skeleton in the adult consists of how many distinct bones and into what classes are they divided? Name one of each class.
  - 2. Describe one of the following bones: femur, tibia, humerus.
- 3. What muscles are severed in an amputation of the fore-arm at its middle third?
  - 4. Describe the fifth cranial nerve and its ganglia.
- 5. Give (a) the nerve supply of the rectum; (b) the blood supply of the rectum.
  - 6. Bound Scarpa's triangle, and give its surgical importance.
  - 7. Describe the vermiform appendix and give its relations.
- 8. What abdominal viscera are invested by the lesser peritoneal sac?
- 9. What are the structures, from without inward, which form the coverings of inguinal hernia?
- 10. Describe the stomach its curves, ends, orifices, structure and glands.

## PHYSIOLOGY.

(One and one-half hours.)

- 1. Explain arterial-tension, and show by what nervous and mechanical agencies it is maintained.
- 2. Give the functions of synovial fluid and of cartilage, and explain how the latter is nourished.
- 3. Describe a complete nerve; (a) name different kinds of fibers and the functions of same.
- 4. What is the source of saliva? name ferment and uses; also chief nerve supply: (a) does increased vascularity increase the flow of saliva?
- 5. What effect follows injury or section of the semi-lunar canals?
- 6. What is the source of the corpuscles of human blood? relative number of each? their function?

- 7. Name the centers and the nerves which regulate intestinal peristalsis; describe their action.
- 8. What is the physiological significance of the normal patellar reflex? Through what nerves is it accomplished?
- 9. What are the normal constituents of urine and the quantity of urea excreted in 24 hours?
- 10. Give the physiology of milk secretion. Describe the mammary gland.

#### CHEMISTRY AND HYGIENE.

(One and one-half hours.)

- 1. Is the telephone a source of infection? If so, how would you destroy the germs deposited on and in it?
- 2. Define fermentation. What ferments enter into (a) Butyric fermentation? (b) Gastric fermentation?
- 3. What does the presence of nitrites in water indicate? How can they be detected?
- 4. (a) What is glucose? (b) What is acetone? (c) Give principal test for each. (d) What is the most important chemical property of glucose? (e) Does glucose occur normally in urine?
- 5. State the difference between a contagious and an infectious disease. What is a communicable disease?
  - 6. How is cow's milk modified to approximate human milk?
- 7. (a) What is stercobilin? (b) What is its use? (c) How is its absence in the intestine indicated?
- 8. What are the qualities required in water for drinking and domestic purposes?
  - 9. What is CH<sub>3</sub>OH? Define its properties and use.
- 10. (a) What are alkaloids? (b) What is the difference between a solid and a liquid alkaloid? (c) Name three liquid alkaloids.

## MATERIA MEDICA AND THERAPEUTICS.

(Two hours.)

1. What is the physiological action of camphor (a) upon

nervous system; (b) circulatory; (c) skin and mucous membrane; (d) respiration?

- 2. Compare the action of canabis indica and chloral hydrate.
- 3. What effects are produced when the following drugs are pushed to their physiological limits: (a) bromide potassium; (b) acetanelid; (c) phosphorus?
- 4. In what manner do the following drugs produce diaphoresis: sodium salicylate, aconite, and ipecac?
  - 5. Action and therapeutic uses of colchicum.
  - 6. What are the therapeutic uses of belladonna?
  - 7. Give the treatment of pericarditis.
- 8. Name four circulatory depressants and state their method of action.
  - 9. Define tincture, spirit cerate, liquor, emulsion.
- 10. Give the physiological action and therapeutic use of veratrum viride.

PRACTICE, PATHOLOGY AND DIAGNOSIS.

(Two and one-half hours.)

- 1. Give the symptoms, diagnosis, and treatment of hydrophobia.
  - 2. Differentiate apoplexy from cerebral embolism.
  - 3. Describe the varieties and causes of intestinal obstruction.
- 4. What are the symptoms and treatment of aneurism of the aorta?
  - 5. What are the causes and symptoms of pulmonary oedema?
- 6. Describe a case of infantile convulsions and give its treatment.
- 7. What are the symptoms and what is the treatment of a case of delirium tremens?
- 8. Diphtheria: (a) symptoms; (b) pathology; (c) complications; (d) treatment.
- 9. Describe a case of acute miliary tuberculosis, including a minute description of a tubercle.
- 10. Describe a case of infectious endocarditis and name its causes.

#### OBSTETRICS AND GYNÆCOLOGY.

(Two hours.)

- · 1. State how the liquor amnii is formed during pregnancy. What is its use before and during labor?
- 2. Give the indications for artificial dilatation of the cervix. What is the best method of doing it: (a) During first half of pregnancy? (b) During second half of pregnancy?
- Give the management of a delivery in a case of head presentation with hand prolapsing.
- 4. Are the Fallopian tubes permeable to intra-uterine fluids? How is the danger prevented?
  - 5. What diseases of the fœtus interfere with or delay labor?
- 6. Give the early symptoms of cancer of the uterus. The history and duration.
- 7 What condition of the mother would indicate the use of instruments in a normal labor?
- 8. Give (a) the symptoms; (b) the prognosis; (c) the treatment; of puerperal eclampsia.
- 9. Give method of treatment in a case of sepsis, where a three months' fœtus had been curretted from the uterus four days before.
- 10. Give technique of internal podalic version in head presentation. Name three conditions of the mother demanding the operation.

## SURGERY.

(Two hours.)

- 1. Describe the method of examining the heart preliminary to the administration of ether and state what conditions of that organ would render the anæsthetic extra hazardous.
- 2. What chronic lung and kidney conditions would render ether extra hazardous?
  - 3. Describe in detail an operation for trephining the skull.
  - 4. Stricture of the œsophagus, (a) diagnosis; (b) treatment.
- 5. Deep stab wounds of the abdomen above the navel, (a) diagnosis; (b) treatment.

- 6. (a) Diagnosis and (b) treatment of ascites due to cirrhosis of the liver.
- 7. Senile hypertrophy of the prostate, (a) diagnosis; (b) operative treatment describing one operation fully.
  - 8. Describe repair in fracture of a long bone.
  - 9. Describe a radical operation for strangulated inguinal hernia.
- 10. Describe two methods of reducing a shoulder dislocation where the head of the humerus is in the axilla.
- (8) Report of Committee on Scientific Work, by Dr. E. J. McKnight (Hartford).

## Report of Committee on Scientific Work.

## Mr. President and Gentlemen of the House of Delegates:

Your committee started out with the intention of securing upon the programme papers prepared by members from each county in the state, but have found it difficult to secure in certain counties men who are willing to devote the necessary time to this work. Failure to carry out their plans is due, then, to the attitude of the members themselves and your committee must not be held responsible. Following the custom inaugurated last year, the afternoon of the first day will be devoted to the reading and discussion of papers on special subjects. At this session, which will begin at 2 o'clock, the following programme has been arranged:

The Use of Sodium Citrate in Infant Feeding — H. Merriman Steele, New Haven.

Neuritis and the Neurasthenic Neuralgias — Frank K. Hallock, Cromwell.

Chronic Gonorrhœa — Ralph A. McDonnell, New Haven. Some Complications of Acute Otitis Media — E. Terry Smith, Hartford.

The Diagnosis and Treatment of some of the more Common Diseases of the Knee Joint — Philip D. Bunce, Hartford.

Your committee takes special pleasure in announcing that Dr. John E. Sheppard, clinical professor of otology in the Long Island

College Hospital has consented to open the discussion upon Dr. E. Terry Smith's papers. Last year the surgical papers were read on the morning of the second day, when the attendance is usually largest. This year your committee has decided to change the order and give the medical papers the preference. Commencing at 9.30 A. M., Thursday, the following papers will be read, followed at 12 M. by the President's address:

Light as a Therapeutic Agent — John B. Kent, Putnam.

The Significance of Cardiac Pain — Edward K. Root, Hartford.

The Diagnosis of Kidney Insufficiency and the Treatment of Uræmia — Oliver T. Osborne, New Haven.

Foreign Health Resorts - Frank T. Brooks, Greenwich.

Your committee, recognizing the excellent, original work done by a native of Connecticut and the city of Hartford, the son of a former honored and influential member of this Society, invited Dr. J. M. Wainwright of Scranton, Pa., a delegate from the Medical Society of the State of Pennsylvania, to prepare a paper for this meeting. Not wishing to crowd out any of our own members, it was at first decided to assign this paper to the evening of the first day of the session immediately preceding the smoker, not knowing that the Committee of Arrangements had planned a theater party at that time. Dr. Wainwright's paper therefore appears with the surgical papers tomorrow afternoon, a change which your committee willingly made, as the member who was expected to read at that time has been unable to carry out his plans. The following papers will be read on Thursday afternoon, commencing at 2 P. M.:

New Growths of the Cæcum — Oliver C. Smith, Hartford.

Recent Advances in the Study of Cancer, with Preliminary Note on a New Line of Investigation — J. Mayhew Wainwright, Scranton, Pa.

The Reduction of Dislocations — D. Chester Brown, Danbury. Some a priori Considerations in the Diagnosis of Fractures — Leonard W. Bacon, Jr., New Haven.

Report of a Case of Avulsion of the Tubercle of the Tibia — Seldon B. Overlook, Pomfret.

The programme has been arranged with the understanding that by-law, Chapter 13, Section I, which limits the reading of papers to twenty minutes and discussions to five minutes, be rigidly enforced. As, however, Dr. Wainwright was invited to prepare a paper to be read outside of the regular meeting and was not limited as to time, your committee requests that an exception be made in his case.

Your committee regrets to announce that this morning there has been received a letter from Dr. L. W. Bacon\* of New Haven, stating that he will be unable to present his paper upon "Some a priori Considerations in the Diagnosis of Fractures." He will be present, however, at the meeting, and make a few remarks upon this subject. His article will be printed in the Transactions.

Respectfully submitted,

E. J. McKNIGHT,

Chairman.

(9) Report of Committee on Honorary Members and Degrees, by Dr. W. H. Carmalt (New Haven).

## Report of Committee on Honorary Members and Degrees.

Mr. President and Gentlemen of the House of Delegates:

The Committee on Honorary Members and Degrees has the honor to report as follows, viz.: No names were given to the committee from last year, hence there are none to submit to the House of Delegates for election.

Your committee has no one to propose for next year.

The majority feel very strongly that honorary membership in the Connecticut State Medical Society should only be conferred upon physicians of national reputation and who have in some way shown interest in the State Society or the profession of the state.

Respectfully submitted,

May 22, 1907.

W. H. CARMALT,

For the Committee.

<sup>\*</sup> Dr. Bacon's presence at the bedside of his father, during the latter's illness, prevented the completion of his paper.

(10) Report of Committee on Arrangements, by Dr. F. T. Simpson (Hartford).

Dr. Simpson, as chairman of this committee, outlined the plans that had been arranged for the entertainment of the members and guests during this session of the Society. On Wednesday evening, May 22d, a theatre party was to be given by the Hartford Medical Society, after which they would give a smoker at the Hunt Memorial Building. The annual dinner was planned for Thursday evening, May 23d, at 7.30 o'clock, at the Allyn House. The price of the dinner would be \$2.50 a person.

(11) Report of Committee on Venereal Disease, Dr. R. A. McDonnell (New Haven).

## Report of Committee on Venereal Disease.

Mr. President and Gentlemen of the House of Delegates:

Your committee would report that, so far as they can learn, no important legislation has been enacted during the year, in any state, which has any bearing on the control of venereal diseases.

There seems to be a decided feeling in the minds of the American people against any recognition of prostitution, and without such recognition there can be no regulation of its consequences which will be at all effectual.

Under present conditions, then, the activity of your committee must be limited to an attempt at public education.

We earnestly urge the members of this Society to use their influence with the parents who come under their professional care, to tell their children the facts about sex which it is essential that they should know, to the end that they may avoid infection from ignorance.

Furthermore, we, as physicians, may do a good deal in the way of public instruction, by means of lectures to schools with which we may be connected, by talks at the Y. M. C. A., and by direct

instruction to the young. The members of your committee have endeavored to lead the way in this direction.

We respectfully request that the present committee be continued.

Very respectfully submitted,

R. A. McDONNELL, JAY W. SEAVER, F. H. WHEELER.

The committee was continued for another year.

(12) Report of Committee on a Colony for Epileptics, Dr. Max Mailhouse (New Haven).

Report of Committee on a Colony for Epileptics in Connecticut.

Mr. President and Gentlemen of the House of Delegates:

Your committee appointed to take steps to secure the establishment of a colony for epileptics in this state have to report that since the last meeting of this Society we have been investigating the methods of caring for this class of unfortunates in several nearby states; have visited possible sites within the state; have prepared and advocated before the Committee on Humane Institutions of the General Assembly a bill providing for the appropriation of a sum of money and the appointment of suitable persons to select a site and build the necessary structures for such an institution. In advocacy of this bill we have had the assistance of Dr. Everett Flood, the superintendent of the Massachusetts Hospital for Epileptics at Palmer in that state. There was no opposition to the bill at this hearing and the committee passed favorably upon it. The next step in the course of events will be the action of the Committee on Appropriations, which will soon take the matter up. We desire to urge upon those present the necessity of appearing at this hearing and of making a strong appeal for the founding of the desired institution. The numbers inquiring of the members of your committee for admission to the colony, which is supposed by some to be already in existence, are constantly on the increase. Every county should be heard from at the hearing. The appeal should come from every corner of the state.

Respectfully submitted,

MAX MAILHOUSE, FRANK K. HALLOCK, EDWIN A. DOWN, WM. L. HIGGINS, A. R. DIEFENDORF.

The committee was continued for another year.

\*Report to the General Assembly of Connecticut of Special Commission appointed by the Governor in 1905 on the Condition and Care of Epileptics.

To His Excellency the Governor:

SIR: The committee appointed to carry out the purposes of the accompanying resolution passed by the General Assembly, A. D. 1905, have the honor to transmit herewith a report of its investigations relating to the epileptic and his care in Connecticut, together with the opinion of the said committee as to the most practical plan of caring for this already large and rapidly increasing class of cases.

The resolution authorizing the raising of such committee is as follows:

#### GENERAL ASSEMBLY,

JANUARY SESSION, A. D. 1905.

Resolved by this Assembly:

#### SECTION I.

That there shall be appointed by the governor in July, 1905, a committee of three persons who shall investigate methods for the care and treatment of persons resident in this state who are affected with epilepsy in any of its forms and conditions, and report to the

<sup>\*</sup> Reprinted from the pamphlet on this subject printed by the State.

General Assembly, at its January session, 1907, the result of such investigation, together with what is deemed by said committee to be the most practical plan to be adopted for such care and treatment by the state as shall secure the most humane and curative results.

The misapprehensions heretofore existing regarding epilepsy, or the "falling sickness," have resulted in the adoption of no methods for the care and treatment of the subjects of this direful malady, with regard to the condition as a disease susceptible of improvement or relative cure.

Prior to the establishment of colonies or villages for epileptics in other states, these persons were housed in any of the public institutions in which they could be received, with no reference to the question of amelioration or improvement generally, the prime object in each case being the safe custody of a person afflicted with a disorder sometimes manifesting itself in propensities or impulses dangerous to himself or others, which rendered him a menace to society.

Connecticut has been no exception to this rule, and hence in carrying out the mandates of the resolution passed by the General Assembly of 1905, our committee found cases in both state asylums, in the School for Imbeciles at Lakeville, in almshouses, homes, orphan asylums, and a few in the county jails, and the state prison.

Notwithstanding the fact that all of these agencies for the custody of the epileptic are available, it is evident, even to the general observer, that the great majority of epileptics in Connecticut do not come under institutional care and oversight, and therefore constitute proper material for a colony population.

Our committee began its labors in behalf of the betterment of the epileptic in 1900, as a committee of the State Medical Society.

The results of its work, which extended over a period of several years, proved conclusively that there were many epileptics in Connecticut who were neglected, and not under the best influence from an economic as well as social and educational points of view.

With the desire of securing exact information regarding the

practical workings of the colony or village system of caring for epileptics, the committee visited several of the best institutions of this character, during the past year, including those in New York, Massachusetts, and New Jersey, and examined their workings in detail.

The conclusions of the committee after these visits of inspection and investigation served to fortify, in the mind of each member, the opinion expressed before the Committee on Humane Institutions, that the colony plan had passed the experimental stage, and was proving itself the only rational method of affording effective and economical care to the class of cases for whose investigation the committee was appointed.

#### THE COLONY PLAN -WHAT IT MEANS.

This means the invoking, in the greatest possible degree, of other than medicinal aids in the cure of the disease, or, where personal factors make this impossible, of reducing to a minimum the frequency and severity of the seizures, the result being to make of the patient a much more useful member of the community in which his future may find him placed, in public or in a colony.

It means that the epileptic is placed in charge of, under the treatment of, and his mode of life in detail arranged by a physician selected for his skill and experience in the care and treatment of patients afflicted with this disease; in other words, that he receives the very best that the community can afford in the way of special supervision. Each case receives individual attention in the intervals between attacks, thus aiming at prevention and so toward cure. This individual attention means:

- (a) Segregation. The sexes are placed at the extreme ends of the colony for obvious reasons.
- (b) The diet is made simple, nutritious, easily digestible, yet palatable and attractive. Errors of digestion are thus avoided, thereby diminishing the frequency of the seizures.
- (c) Attention to personal hygiene is insisted upon, which makes for better health in all diseases and walks of life.

- (d) A system of common school education is established, from the earliest school age up to the highest grammar grades, whereby the inmates are taught the refining influences of study and made to realize and appreciate the advantages placed at their disposal in other departments of the institution.
- (e) Manual training is made a part of the instruction; develops mind, hand and muscle, lays the foundation for the acquirement of trades, gives employment to brain and brawn, and thus lessens explosive discharges of nerve force (fits), and thereby tends toward cure. These occupations may include all or a majority of the following: Carpentry, plumbing, brickmaking, tailoring, marketgardening, farming, printing, and bookbinding, dressmaking, laundry-work, baking, sewing, etc.
- (f) The subjection of the patient to discipline in all of his duties at the colony, in the schoolroom, in his diversions and occupations, the practice of self-restraint making for a better morale in the epileptic.

Patients of this class are apt to be irascible, domineering, moody, and given to outbursts of temper. After being in a colony for a period of time these qualities seem to melt away.

#### THE ADVANTAGES OF A COLONY.

The advantages of the colony plan are numerous, but for the present purpose may be considered in two aspects, namely, the benefit to the epileptic and the benefit to the state.

The benefit or advantage to the epileptic is essentially medical. Under this heading we may consider, first, the strictly therapeutic management of the disease; second, the regulation of the patient's life; and, third, the advantage of the colony over the hospital or institution treatment.

The first needs no comment, for it is self-evident that with the individuals under full control, the various medical and surgical methods of treatment can be most perfectly followed.

The second consideration, the regulation of the patient's life, is, in the majority of cases, the most important part of the care and

treatment. The reasons for this are that the mental characteristics of most epileptics are such that they will not, or cannot, follow a definite routine of daily living which will tend to keep them in stable equilibrium and thus free from attacks. Many are positively self-willed and obstinate and nearly all are prone to be indiscreet in conduct, diet, etc., exhibiting a certain unevenness or irregularity which reaches its culmination in convulsive seizures.

Furthermore, the ordinary life at home, or at large, with its varied demands and distractions, is manifestly unfavorable to this quiet, regular existence so extremely necessary. Hence, both from within and without, do we find the conditions of so-called normal existence a serious disadvantage to this class of defective individuals.

The colony plan meets all the needed requirements for the proper regulation of the patient's life. His case is studied and treated with scientific accuracy and he is guided and protected in all his activities, mental, moral, social and physical. The kind and amount of food, of exercise, work and play, in fact, all that he does or has done for him, is determined and regulated according to definite principles. In brief, he is made to live the kind of life best suited to stop or lessen his attacks, and thus make him a contented and in many cases a productive citizen of the state.

The advantages of the colony over the hospital or institution are these:

It provides the most free, natural and wholesome conditions; in short, a home best suited to the peculiar needs of the patient,

Under the colony system the individuality of the patient is more perfectly maintained. He becomes the object of special attention and is not merely one of the common horde of hospital patients.

The various cottages composing the colony permit more perfect classification of cases.

The colony plan is not merely custodial, it is educational in its principles. It provides opportunities for the work on the farm or in the trades as well as the necessary recreations and congenial social relations to a degree which no ordinary hospital or institution can hope to offer its inmates.

The advanages of the colony to the state may be considered as twofold; that is, economic and humanitarian.

First, the original cost as compared with hospitals and other institutions for the care and treatment of the dependent classes is relatively less. No large and expensive buildings are necessary. The chief item is the land, and as this ought to be reasonably removed from the centers of population its cost should not be great.

The cost of maintenance will no doubt average much the same as that of the state asylums. It will certainly not be greater and possibly may be less.

The actual net cost of maintenance will be reduced from onefifth to one-fourth by the value of the labor and sale of products raised or manufactured by the colonists.

An indirect economic advantage of no small account will be the relief of other public institutions from the care of this class of dependents, thus creating additional accommodation for patients more suited to their purpose.

The benefit or advantage to the state of a colony for epileptics from a humanitarian standpoint consists, first, in protecting the victims of this disease from the frequent menace they are both to themselves and to the general public. This menace is widespread in its scope, including:

Direct personal harm to self or others.

The shock and bad effects upon nervous and impressionable persons witnessing the attack.

The great trial and distress to the family possessing an epileptic member.

Danger to the community through the vicious, criminal and degenerative tendencies of a certain portion of epileptics.

Marriage or illegitimate sexual relations with reproduction of kind.

. Impairment or abolition of earning power, imposing a cumulative burden for support.

Second, in remedying the injustice of the present practice of confining so many of these unfortunates in asylums, or poor-houses, or otherwise subjecting them to crude and inadequate methods of care and treatment.

Third, the not inconsiderable number of citizens (estimated at 2,000) afflicted with one of the most serious and dread of human ills are by right entitled to the fullest sympathy and justice. By providing accommodations and treatment according to the colony plan, the state will fulfill its duty and moral obligations in the best and most humane way.

#### MATERIAL FOR A COLONY POPULATION.

The material from which the population of a colony is made up is drawn in large part from the indigent and pauper classes, where epilepsy receives less frequent and less thorough attention. From time to time requests for admission to a colony have come in from families in which such cases exist, to members of your committee during the past six years, while investigating the subject for the Connecticut State Medical Society. That investigation was limited to epileptics over six years of age not pronouncedly insane or idiotic. Of this class, in the returns of the year 1902, there was a total of 357 cases, grouped as follows:

Sex. — Males, 202; females, 155.

Social condition. — Single, 262; married, 68; widowed, 23; divorced, 3; not stated, 1.

Working ability. — Partial (4 to 8 hours), 116; full (10 hours), 72.

Mental condition. — Sane, 151; feeble minded, 205; not stated, 1.

Financial status. — Good, 77; indigent, 134; pauper, 145; proper subjects for colony, 148; susceptible of improvement, 120.

These figures are inexact and far below the actual numbers, in that an earlier investigation gave returns exceeding 500 as the epileptic population, while an estimate based upon population, and in accordance with estimate made by investigators in other states, would place the number of epileptics in this state as something like 2,000. The number suitable for a colony would now be further increased by the larger population during the past four years,

as well as by the deterioration in condition of many epileptics to whom these four years of time have already been lost. Some epileptics at present in almshouses and asylums for the insane would become inmates for such a colony, those from institutions of the latter class being transferable to a colony where in individual cases the epilepsy is the predominant feature, while on the other hand, if the insanity is predominant, the case should be retained in the asylum.

#### FORMS OF EPILEPSY.

The ordinary, and for practical uses, the most satisfactory classification of the forms of epilepsy is the division into four types: Grand Mal, Petit Mal, Jacksonian, and Psychic.

- 1. The first, Grand Mal, is the most common and is generally the form best understood by the laity. The fit is severe, consciousness is lost, and the patient falls or is thrown to the ground with more or less violence. The body stiffens in a tonic spasm and then come the convulsive movements, followed usually by sleep or stupor.
- 2. In the second form, Petit Mal, the fit is mild. It partakes more or less of all the features of Grand Mal, but is characterized by lessened severity. Consciousness may not be lost and the convulsive movements need not be marked. Return to normal is more rapid.
- 3. Jacksonian epilepsy, the third form, named after the English physician, Hughlings-Jackson, is characterized by the confinement of the convulsive movements to one leg or arm or group of muscles. Consciousness is not lost and the patient seldom falls to the ground.
- 4. The fourth type, psychic epilepsy, is, as the name implies, a seizure of the mind without muscular spasms or any disturbance of the body. There is a temporary blank in the field of consciousness or a lapse of memory lasting from a second to days or weeks. Epileptics themselves speak of such attacks as "dizzy spells," "blanks," "faints," etc.

Although there are fully two score different designations of epilepsy purporting to represent varieties of the disease, they can all be classified under the four main types stated above. It will be of value, however, to consider briefly some of the following epileptic conditions or phases.

- 1. Some patients are subject to serial attacks, one following another with more or less rapidity until a large number have occurred. These cases are naturally serious on account of the danger of complete exhaustion.
- 2. Status epileptious is a condition often spoken of as the climax of epilepsy. One paroxysm follows another so closely that the coma or unconsciousness and exhaustion are continuous between seizures and the end is almost invariably fatal.
- 3. Psychic epileptic equivalents are fragments of epilepsy which are equal to or take in some degree the place of epilepsy. The disturbance of consciousness generally assumes one of two phases, either a sudden maniacal outbreak lasting for a few moments to several days, or the alteration or the loss of consciousness may take the form of quiet, orderly processes without motor disturbance. All kinds of impulsive speech and behavior may occur, including the commitment of indecencies and criminal acts.
- 4. The pre-inter- and post-paroxysmal mental states due to epilepsy are extremely various in their manifestation and occupy a large and important part of the study of the disease. As the terms indicate, the mental disturbance may occur before, between, or after the convulsive seizures. Every form and degree of psychic disorder may be represented, from an absolute blank state of mind to the most violent insanity. The knowledge of these conditions is of profound importance in interpreting the actions and conduct of many epileptics.

There are many other variations in type and phase in which the disease manifests itself, but what has already been said will indicate sufficiently the comprehensiveness of the problem offered the student of epilepsy.

Respectfully submitted,

MAX MAILHOUSE, FRANK K. HALLOCK, EDWIN A. DOWN.

Committee.

(13) Report of Committee on Psychopathic Wards in General Hospitals, Dr. Allen R. Diefendorf (Middletown).

# Report of Committee on Psychopathic Wards in General Hospital.

Mr. President and Gentlemen of the House of Delegates:

Your committee which was appointed "to investigate the causes of the increase of insanity in this state and to consider the advisability of establishing psychopathic wards in general hospitals" are able to report that the investigation of the causes of the increase of insanity has been undertaken at the Connecticut Hospital for the Insane. This work is well under way, but cannot be completed within several months. Individual members of the committee have conferred with directors of the large general hospitals in the state, with the result that considerable interest has been aroused in reference to the establishment of psychopathic wards. Some objections have been encountered, but these refer chiefly to the matter of expense in the equipment and maintenance of such wards and the difficulty of securing satisfactory nursing and medical staffs. As will be seen, these objections in no way reflect upon the advisability of undertaking this important work and in the opinion of your committee can be ultimately overcome. The need of such wards is in no way questioned.

Another and important consideration which your committee have discussed is the education of the community at large in matters pertaining to insanity and its preventable causes. With this in view, arrangements are being made to have public lectures given this coming winter. Your committee have noticed with interest the success of similar work carried on along this line in New York city and are confident that great benefit will result from the movement in Connecticut.

Respectfully submitted,

A. R. DIEFENDORF, D. C. BROWN, F. T. SIMPSON, MAX MAILHOUSE.

The committee was continued for another year.

(14) Report of Committee on National Legislation, Dr. Elias Pratt (Torrington).

## Report of Committee on Legislation.

Mr. President and Gentlemen of the House of Delegates:

The Annual Conference of the Committee on Medical Legislation and the National Legislative Council was held December 13-15, 1906.

The meetings were open to the public and members of Congress and eminent scientists were invited to participate in the discussion of the questions which came before the committee.

The following are the subjects upon which Congress is urged to legislate:

A National Department of Public Health, with representation in the cabinet of the President. A committee is at present at work formulating a bill to be presented to Congress and there are friends in both branches of Congress who will use their efforts to pass such a measure.

The Council is still urging the passage of a measure for the relief of that hero, Dr. James Carroll, who ruined his health in demonstrating the carrier of the contagion of yellow fever.

Another important measure is the Army Medical Reorganization Bill. At the last session this bill passed the Senate, but was not allowed to be considered by the speaker of the House. The Council are opposing the Osteopath Bill for the District of Columbia.

Efforts are being made to bring about uniform laws in the different states relating to pure food and drugs, uniform laws relating to medical practice, and also uniform laws with reference to quackery and charlatans.

The American Medical Association has inaugurated the policy of holding meetings for the general public, for the discussion of subjects of mutual interest to the medical profession and the public.

All of these subjects were discussed by a number of distinguished

men and the interest shown gives ground for hope that these measures will be adopted in the near future.

Respectfully submitted ELIAS PRATT.

Adjourned at 1.50 P. M., to meet again in the afternoon, at the close of the scientific session.

### AFTERNOON SESSION, WEDNESDAY, MAY 22, 1907.

The meeting was called to order at 6.30 P.M. by the President, Dr. William L. Higgins. There were present, Dr. Rush W. Kimball, Dr. Frank E. Guild, Frank K. Hallock (councilors), and Dr. John B. Boucher, Dr. William S. Kingbury, Dr. Edward R. Lampson, Dr. Joseph H. Townsend, Dr. J. Reed Topping, Dr. D. Chester Brown, Dr. William S. Randall, Dr. Frank W. Stevens, Dr. Charles C. Gildersleeve, Dr. J. Francis Calef (delegates), the President and the Secretary.

The following reports were then read:

(15) Report of Committee on Vaccination, by Dr. E. J. McKnight (Hartford)

(Read by the Secretary, in the absence of Dr. McKnight.)

# The Report of the Committee to Prepare a Pamphlet on Vaccination.

Mr. President and Gentlemen of the House of Delegates:

At the annual meeting of this Society in 1905 a committee consisting of C. A. Lindsley, W. L. Higgins and E. J. McKnight was appointed "to draw up a paper on vaccination for distribution to members for use in the various counties and county associations, and for personal distribution to the public in disseminating knowledge relating to vaccination." The vacancy caused by the death of Dr. Lindsley was filled by the appointment of Dr. W. E. Ray of Hartford. At the last annual meeting the Committee was continued for another year "with the understanding that a suitable pamphlet be printed before the opening of the next session

of the General Assembly." Upon the election of Dr. Higgins to the Presidency of the Society Dr. J. H. Townsend, Secretary of the State Board of Health was selected to fill his place. Your Committee decided to procure copies of "Facts about Smallpox and Vaccination," published by the British Medical Association, to be supplemented by one of our own production. Fifteen hundred copies of the former and twenty-five copies of a reprint of the issue of the British Medical Journal for July 1902 were procured at an expense of \$47.97; to which is to be added foreign freight charges \$13.17; custom entries and clearance charges \$3.50; drayage \$.50; express \$3.00; foreign money order \$.50 making a total of \$68.64. The charge for printing the pamphlets compiled by your committee was \$37.35 making a total of \$105.99, expended by your committee in procuring the above mentioned pamphlets and placing them in the hands of the Committee on Public Policy and Legislation.

> JOSEPH H. TOWNSEND, E. J. McKNIGHT, W. E. RAY,

Committee to prepare a pamphlet upon Vaccination.

The report was accepted and the Committee was continued for another year.

(16) Reports of the Special Committees to consider the recommendations in the reports of the President, the Secretary, and the Chairman of the Committee on Public Policy and Legislation.

(Read by the Secretary.)

# Report of Special Committee to Consider the Recommendations in the Report of the President and Secretary.

Mr. President and Gentlemen of the House of Delegates:

The Committee on recommendations of the President and Secretary beg leave to report that they endorse favorably the recommendation of the Secretary concerning application blanks for

members of the different County Societies; also that the periodicals in possession of the Society be bound and that all the transactions of other states' Societies, which we own, be catalogued.

We agree with the President that Dr. Spratling's expenses should be paid by the Society, and that some method, if none exists, be devised for filling the office of Chairman of the board of Councilors when it becomes vacant, together with a method for representation at meetings of the Council when the Councilor-elect of the County, for any cause, is unable to attend.

Respectfully submitted,

W. S. KINGSBURY, T. R. PARKER.

# Report of Special Committee to Consider Recommendations in Report of the Committee on Public Policy and Legislation.

Mr. President and Gentlemen of the House of Delegates:

The Committee appointed to consider the recommendations embodied in report of the Committee on Public Policy and Legislation submit the following:

I We heartily commend the action of the Committee in securing services of an attorney and suggest that his services be retained for the ensuing year.

II We endorse the action of the Committee in regard to the Pure Food bill and the Medical Practice act.

III We consider the action taken in behalf of vaccination most timely and deserving of the hearty co-operation of the entire Medical Profession, and recommend that the expenses so incurred be paid by the Society.

IV We do not consider the formation of a Society of Laymen to be practical, and in view of the excellent work of this Committee we recommend that it be made permanent as it now stands.

LOUIS M. GOMPERTZ, GEO. R. HARRIS,

Committee.

Discussion by Dr. J. H. Townsend (New Haven), Dr. J. F. Calef (Middletown), Dr. D. Chester Brown (Danbury), Dr. Charles C. Gildersleeve (East Woodstock), Dr. W. S. Kingsbury (Glastonbury), Dr. Frank K. Hallock (Middletown), Dr. Rush W. Kimball (Norwich), Dr. William S. Randall (Shelton), and Dr. Edward R. Lampson (Hartford).

The report of the committee to consider the recommendations in the President's and Secretary's report was finally accepted. As this Committee did not refer to Dr. Steiner's suggestion, that a Committee be formed, composed of Dr. John B. Lewis, the County Secretaries, and the State Secretary to revise the application blanks for membership and make them uniform in all the counties, as well as prepare a definite sized card for all the card indices, to be in the possession of the County Secretaries and the State Secretary, Dr. Steiner put this as a motion. Carried.

Dr. D. Chester Brown (Danbury): I make a motion that the delegates from each county Society be instructed to bring before their respective Society, at its next meeting, the question whether alternate delegates shall be appointed to the State Society, and that further action by this Society be postponed until our next meeting.

Carried.

The report of the second committee to consider the recommendations in the report of the Committee on Public Policy and Legislation was received and accepted, with the exception of their fourth recommendation, which was tabled. The other recommendations in this report as well as in the report of the first special committee were then adopted, as well as the fourth and fifth recommendations in the report of the Chairman of the Council.

The third recommendation in the report of the Chairman of the Council was also made in the President's report, where it had been favorably acted on by one of the special Committees. The first and second recommendations of the Council, referring to amendments to the by-laws, were considered on the following day.

#### MISCELLANEOUS BUSINESS.

Dr. W. S. Randall (Shelton): I move, Mr. President, that the tax be \$3.00 for the ensuing year. Carried.

The Secretary then read the requests of the Fairfield County and Hartford County Medical Associations that the dues of

Dr. Nathaniel E. Worden of Bridgeport, Dr. Henry M. Rising of South Glastonbury and Dr. Michael J. Coholan of New Britain be remitted. This was put in the form of a motion and carried.

Adjourned to meet again Thursday morning, May 23d, at 9 A. M.

## MORNING SESSION, THURSDAY, MAY 23, 1907.

The meeting was called to order at 10.30 A. M., by the President, Dr. William L. Higgins. There were present: Dr. Oliver C. Smith, Dr. Frank E. Guild and Dr. Frank K. Hallock (Councilors), and Dr. John B. Boucher, Dr. Levi B. Cochran, Dr. Edward R. Lampson, Dr. George R. Harris, Dr. J. Reed Topping, Dr. Francis I. Nettleton, Dr. D. Chester Brown, Dr. William L. Randall, Dr. Frank W. Stevens, Dr. Charles C. Gildersleeve, Dr. Noah S. Wadhams (delegates), the President and the Secretary.

The reading of the minutes of the meetings of the previous day were, on motion, dispensed with.

The President: Dr. Hallock will report the nominations as Chairman of the Council, which is the Nominating Committee.

Dr. Frank K. Hallock (Middletown): Mr. President, the Board of Councilors has made the following nominations (see pages 23 and 24).

Before proceeding to the election of officers the rules were suspended and the following business transacted, the first order of business being the amendments to the by-laws recommended by the Council (see pages 20 and 21).

Dr. J. Reed Topping (Bridgeport): I move that these amendments be incorporated in the by-laws, in the places designated.

Carried.

On motion of the Secretary, Dr. George Blumer, of New Haven, was made a guest of the Society at this session.

The Secretary: In my Secretary's report I referred to the seal and said that last year I was instructed to add the word "State"

to our official designation. I have been unable to find as yet an early imprint of our seal, but, if the Society is willing, I shall continue my investigations along this line.

Dr. J. Reed Topping (Bridgeport): I move that the Secretary be empowered to cast a single ballot for the officers nominated. Carried, there being no other nominations.

The Secretary: Mr. President, I have cast one ballot for the following nominations made by the Council (the list was then read (see pages 23 and 24).

Dr. Frank K. Hallock (Middletown): I move that our next annual meeting be held on the fourth Wednesday and Thursday of May, 1908. Carried.

The House of Delegates then adjourned.

## The Banquet.

The annual banquet was held at the Allyn House, on Thursday evening, May 23d, at 7.30 p. m.. One hundred and five members of the society were present. Dr. Frederick T. Simpson acted as toastmaster. The following were the speakers:

LIEUTENANT GOVERNOR EVERETT J. LAKE, Dr. WILLIAM L. HIGGINS, Mr. CHARLES HOPKINS CLARK, Reverend WILLIAM J. McGurk, Mr. WILLIAM H. CORBIN.



CHARTER AND BY-LAWS.



# Resolution Amending the Charter of the Connecticut Medical Society.

GENERAL ASSEMBLY.

JANUARY SESSION, A.D. 1905.

Resolved by this assembly:

Section 1. That the charter of the Connecticut Medical Society, approved June 5, 1834, and as the same has been amended from time to time, be and the same is hereby amended so as to read as follows:

That all persons who are now members of the Connecticut Medical Society and all physicians and surgeons who shall hereafter be associated with them in pursuance of the provisions of this resolution shall be and remain a body politic and corporate by the name of The Connecticut State Medical Society; and by that name they and their successors shall and may have perpetual succession; shall be capable of suing and being sued, pleading and being impleaded, in all suits of whatever name and nature; may have a common seal and may alter the same at pleasure; and may also purchase, receive, hold, and convey any estate, real and personal, to an amount not exceeding one hundred thousand dollars.

Sec. 2. The superintendence and management of the corporation shall be vested in a board to be known and called by the name of The House of Delegates of the Connecticut State Medical Society, which board shall have power to establish offices in said corporation and prescribe the duties of the several officers and of the members of said corporation and may fix their compensation; to establish the conditions of admission to and dismission and expulsion from said society; to lay a tax from time to time upon the members, not exceeding five dollars in each year and to collect the same; to hold and dispose of all moneys and other property belonging to the corporation in such manner as they may deem proper to

promote the objects and interests of the society; and in general to make such by-laws and regulations for the due government of the society, not repugnant to the laws of the United States or of this state as may be deemed necessary.

- Sec. 3. The House of Delegates of The Connecticut State Medical Society shall be composed of (1) ex officio, the president and secretary of the Society; (2) delegates to be elected annually as hereinafter provided, by the several county medical associations in this state which heretofore have been and now are affiliated with The Connecticut Medical Society; and (3) eight councilors to be elected from time to time as hereinafter provided.
- Sec. 4. An annual meeting of the corporation for the election of officers and such other business as may from time to time arise, shall be held during the month of May in each year and upon such day in said month as the house of delegates shall from time to time prescribe.
- Sec. 5. At a meeting to be held at least twenty days in advance of the annual meeting of the corporation in each year, every affiliated county association shall elect a delegate or delegates to represent it in the house of delegates of this society in the proportion of one delegate to each thirty-five members, or any part of that number, and the secretary of such affiliated county association shall send a list of such delegates to the secretary of this corporation at least twenty days before the date of said annual meeting.
- Sec. 6. The first councilors shall be appointed by the president, one from each county, who shall serve for one year or until their successors shall be elected. At their annual meeting in the year 1906, each affiliated county medical association shall elect one councilor, of whom those elected in Hartford, New London, Windham, and Middlesex counties shall serve for one year, and those elected in New Haven, Fairfield, Litchfield and Tolland counties shall serve for two years; and at the expiration of the term of office of the councilors so elected, each affiliated county medical association shall, biennially thereafter, elect a councilor, who shall serve for two years.

Sec. 7. The secretary of every affiliated county medical association in this state shall, in May, 1905, and annually thereafter, at least ten days before the annual meeting of the society, file with its secretary a list of all members of said respective county associations who are at the time in good and regular standing, and thereupon all such persons shall become and be members of The Connecticut State Medical Society without further action.

## The Connecticut State Medical Society.

#### BY-LAWS.

#### CHAPTER I.

- Section 1. Name. The name and title of this organization shall be the Connecticut State Medical Society.
- Sec. 2. Purposes of the Society. The purposes of this society shall be to federate and bring into one compact organization the entire medical profession of the State of Connecticut, and to unite with similar societies of other states to form the American Medical Association; to extend medical knowledge and advance medical science; to elevate the standard of medical education, and to secure the enactment and enforcement of just medical laws; to promote friendly intercourse among physicians; to guard and foster the material interests of its members and to protect them against imposition; and to enlighten and 'direct public opinion in regard to the great problems of State medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public, in the prevention and cure of disease, and in prolonging and adding comfort to life.
- Sec. 3. Component Associations. Component Associations shall consist of those county medical associations which heretofore have been and now are affiliated with the Connecticut Medical Society.
- Sec. 4. Composition of Society. This Society shall consist of members, delegates, guests, and honorary members.
- Sec. 5. Members. Members of this society shall be members of the component county medical associations.
- Sec. 6. Delegates. Delegates shall be those members who are elected by the component county associations; (2) the Councilors; their respective component associations in the house of delegates of this Society.

- Sec. 7. Guests. Any distinguished physician not a resident of this State who is a member of his own State Association, may become a guest during any Annual Session on invitation of the officers of this Society and shall be accorded the privilege of participating in all the scientific work for that Session.
- Sec. 8. Honorary Members. Eminent physicians, not residents of this State, may be elected Honorary Members by a major vote of the House of Delegates after nomination of one year, but such shall not exceed three in any one year.

Honorary Members shall have all the privileges accorded by Sec. 7 to Guests.

#### CHAPTER II .- MEMBERSHIP.

Section I. The name of a physician upon the properly certified roster of members of a component association, who has paid his annual assessment, shall be prima facie evidence of membership in this Society.

The annual tax shall be collected from all such members except the secretaries of County Medical Associations, but the taxes of any member may be remitted by vote of the House of Delegates upon recommendation of any County Medical Association.

- Sec. 2. Any person who is under sentence of suspension or expulsion from a component association, or whose name has been dropped from its roll of members, shall not be entitled to any of the rights or benefits of the Society, nor shall he be permitted to take part in any of its proceedings until he has been relieved of such disability.
- Sec. 3. Each member in attendance at the Annual Session shall enter his name on the registration book, indicating the component association of which he is a member.

#### CHAPTER III.-HOUSE OF DELEGATES.

Section 1. The House of Delegates shall be the legislative and business body of the Society, and shall consist of (1) delegates elected by the component county associations; (2) the Councilors; and (3) ex officio, the President and Secretary of this Society.

- Sec. 2. The House of Delegates shall meet on the first day of the annual session. It may adjourn from time to time as may be necessary to complete its business, provided that its hours shall conflict as little as possible with the General Meetings. The order of business shall be arranged as a separate section of the programme.
- Sec. 3. Each component association shall be entitled to send to the House of Delegates each year, one delegate for every thirtyfive members, or any part of that number.
  - Sec. 4. Fifteen delegates shall constitute a quorum.
- Sec. 5. It shall, through its officers, Council, and otherwise, give diligent attention to and foster the scientific work and spirit of the Society, and shall constantly strive to make each Annual Session a stepping-stone to further advancement.
- Sec. 6. It shall consider and advise as to the material interests of the profession, and of the public in those important matters wherein it is dependent upon the profession and shall use its influence to secure and enforce all proper medical and public-health legislation, and to diffuse popular information in relation thereto.
- Sec. 7. It shall make careful inquiry into the condition of the profession of each county in the state, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interests in such county associations as already exist and for organizing the profession in counties where associations do not exist. It shall especially and systematically endeavor to promote friendly intercourse among physicians of the same locality, and shall continue these efforts until every physician in every county of the state who can be made reputable has been brought under medical society influence.
- Sec. 8. It shall encourage post-graduate and research work, as well as home study, and shall endeavor to have the results discussed and utilized.
- Sec. 9. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the Constitution and By-laws of that body.

Sec. 10. It shall have authority to appoint committees for special purposes from among members of the Society who are not members of the House of Delegates.

Such committees shall report to the House of Delegates, and may be present and participate in the debate on their reports.

Sec. 11. It shall approve all memorials and resolutions issued in the name of the Society before the same shall become effective.

Sec. 12. Sections and District Societies. The House of Delegates may provide for a division of the scientific work of the Society into appropriate sections, and for the organization of such Councilor District Associations as will promote the best interests of the profession, such associations to be composed exclusively of members of component county associations.

#### CHAPTER IV .- SESSIONS AND MEETINGS.

Section 1. The Society shall hold an annual session during which there shall be held daily General Meetings which shall be open to all registered members, guests, and honorary members.

- Sec. 2. The time and place for holding each annual session shall be fixed by the House of Delegates.
- Sec. 3. Special meetings of either the Society or the House of Delegates shall be called by the President, on petition of ten (10) delegates or fifty (50) members.
- Sec. 4. General Meetings. All registered members may attend and participate in the proceedings and discussions of the General Meetings and of the Sections. The General Meetings shall be presided over by the President or by one of the Vice-Presidents, and before them shall be delivered the address of the President and the orations.
- Sec. 5. The General Meeting may recommend to the House of Delegates the appointment of committees or commissions for scientific investigation of special interest and importance to the profession and the public.

#### CHAPTER V .- OFFICERS.

Section 1. The officers of this Society shall be a President, two Vice-Presidents, a Secretary, a Treasurer, and eight Councilors.

- Sec. 2. The officers, except the Councilors, shall be elected annually. The first Councilors shall be appointed by the President, one from each county, who shall serve for one year, or until their successors shall be elected. At their annual meetings in the year 1906, each affiliated county medical association shall elect one councilor, of whom those elected in Hartford, New London, Windham, and Middlesex counties shall serve for one year, and those elected in New Haven, Fairfield, Litchfield, and Tolland counties shall serve for two years, and at the expiration of the term of office of the councilors so elected, each affiliated county medical association shall, biennially, elect a councilor, who shall serve for two years.
- Sec. 3. All elections shall be by ballot, and a majority of the votes cast shall be necessary to elect.
- Sec. 4. The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the General Session, but no delegate shall be eligible to any office named in the preceding section, except that of councilor, and no person shall be elected to any such office who has not been a member of the Society for the past two years.

#### CHAPTER VI. - DUTIES OF OFFICERS.

- Section I. The President shall preside at all meetings of the Society and of the House of Delegates; shall appoint all committees not otherwise provided for; he shall deliver an annual address at such time as may be arranged, and perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit by appointment the various sections of the State and assist the Councilors in building up the county associations and in making their work more practical and useful.
- Sec. 2. The Vice-Presidents shall assist the President in the discharge of his duties. In the event of the President's death,

resignation, or removal, the Council shall select one of the Vice-Presidents to succeed him.

Sec. 3. The Treasurer shall give bond in the sum of \$1,000, the manner of bonding to be left to the Council. He shall demand and receive all funds due the Society, together with the bequests and donations. He shall pay money out of the treasury only on a written order of the President, countersigned by the Secretary; he shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands.

Sec. 4. The Secretary shall attend the General Meetings of the Society and the meetings of the House of Delegates, and shall keep minutes of their respective proceedings in separate record books. He shall be ex-officio Secretary of the Council. He shall be custodian of all record books and papers belonging to the Society, except such as properly belong to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the Society which come into his hands. He shall provide for the registration of the members and delegates of the annual sessions. He shall, with the co-operation of the secretaries of the component associations, keep a card-index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county association, and, on request, shall transmit a copy of this list to the American Medical Association. He shall aid the Councilors in the organization and improvement of the county associations and in the extension of the power and usefulness of this Society. He shall conduct the official correspondence, notifying members of meetings, officers of their election, and committees of their appointment and duties. He shall employ such assistants as may be ordered by the House of Delegates, and shall make an annual report to the House of Delegates. He shall supply each component association with the necessary blanks for making their annual reports. Acting with the Committee on Scientific Work, he shall prepare and issue all programmes. The amount of his salary shall be fixed by the Council.

#### CHAPTER VII. - COUNCIL.

- Section I. The Council shall consist of one Councilor from each county and the President and Secretary ex officio. It shall be the Finance Committee of the House of Delegates. Five Councilors shall constitute a quorum.
- Sec. 2. The Council shall meet daily during the Session, and at such other times as necessity may require, subject to the call of the chairman or on petition of three Councilors. It shall meet on the last day of the annual session of the Society to organize and outline work for the ensuing year. It shall elect a chairman and a clerk, who, in the absence of the Secretary of the Society, shall keep a record of its proceedings. It shall through its chairman, make an annual report to the House of Delegates.
- Sec. 3. The Board of Councilors shall constitute the nominating committee of the Society. They shall report as such to the House of Delegates on the first day of the general session. After the report has been submitted an opportunity shall be given for other nominations to be made.
- Sec. 4. Each Councilor shall be organizer, peacemaker, and censor for his district. He shall visit the counties in his district at least once a year for the purpose of organizing component associations where none exist; for inquiring into the condition of the profession, and for improving and increasing the zeal of the county associations and their members. He shall make an annual report of his work and of the condition of the profession of each county in his district at the Annual Session of the House of Delegates.
- Sec. 5. The Council shall be the Board of Censors of the Society. It shall consider all questions involving the rights and standing of members, whether in relation to other members, to the component associations, or to this Society. All questions of an ethical nature brought before the House of Delegates or the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or component associations on which an appeal is taken from the decision of an individual Councilor, and its decision in all such matters shall be final.

Sec. 6. The Council shall provide for and superintend the publication and distribution of all proceedings, transactions, and memoirs of the Society, and shall have authority to appoint an editor and such assistants as it deems necessary. All money received by the Council and its agents, resulting from the discharge of the duties assigned to them, must be paid to the Treasurer of the Society. As the Finance Committee it shall annually audit the accounts of the Treasurer and Secretary and other agents of this Society, and present a statement of the same in its annual report to the House of Delegates, which report shall also specify the character and cost of all the publications of this Society during the year, and the amount of all other property belonging to the Society under its control, with such suggestions as it may deem necessary. In the event of a vacancy in the office of the Secretary or the Treasurer, the Council shall fill the vacancy until the next annual election

#### CHAPTER VIII.—COMMITTEES.

Section 1. The standing committees shall be as follows:

A Committee on Scientific Work.

A Committee on Public Policy and Legislation.

A Committee on Medical Examination and Medical Educa-

A Committeee on Honorary Members and Degrees.

A Committee on Arrangement, and such other committees as may be necessary. Such committees shall be elected by the House of Delegates unless otherwise provided.

Sec. 2. The Committee on Scientific Work shall consist of three members, of which the Secretary shall be one, and shall determine the character and scope of the scientific proceedings of the Society for each session, subject to the instructions of the House of Delegates. Fifteen days previous to each annual session it shall prepare and issue a programme announcing the order in which papers, discussions and other business shall be presented.

Sec. 3. The Committee on Public Policy and Legislation shall consist of one member from each component association, and

the President and Secretary. Under the direction of the House of Delegates it shall represent the Society in securing and enforcing legislation in the interest of the public health and scientific medicine. It shall keep in touch with professional and public opinion, shall endeavor to shape legislation so as to secure the best results for the whole people and shall strive to organize professional influence so as to promote the general good of the community in local, state, and national affairs and elections.

- Sec. 4. The Committee on Medical Examination and Medical Education shall consist of five members who shall be appointed in accordance with Sec. 4717 of the general statutes of the State of Connecticut. The committee shall conduct the medical examination of candidates for certificates of qualifications for license to practice medicine in the State in accord with the requirements of the Medical Practice Act. It shall annually present a written report to the House of Delegates. The committee shall also be a committee on medical education and shall co-operate with the council of education of the American Medical Association in the effort to elevate the standard of medical education in the United States.
- Sec. 5. The Committee on Honorary Members and Degrees shall present annually to the House of Delegates the names of not more than three eminent physicians not residents of this state, as candidates for honorary membership in this Society. Such candidates may be elected honorary members in accordance with the provisions of Chap. I, Sec. 8, of the By-laws.
- Sec. 6. The Committee of Arrangements shall be appointed by the component association in which the Annual Session is to be held. It shall provide suitable accommodations for the meeting places of the Society and of the House of Delegates, and of their respective committees. Its chairman shall report an outline of the arrangements to the Secretary for publication in the programme, and shall make additional announcements during the session as occasion may require.

# CHAPTER IX.—RECIPROCITY OF MEMBERSHIP WITH OTHER STATE SOCIETIES.

In order to broaden professional fellowship this Society is ready to arrange with other State Medical Societies for an interchange of certificates of membership, so that members moving from one State to another may avoid the formality of re-election.

#### CHAPTER X .- FUNDS AND EXPENSES.

Funds shall he raised by an equal per capita assessment on each component association. The amount of the assessment shall be fixed by the House of Delegates, but shall not exceed the sum of \$3.00 per capita per annum except on a four-fifths vote of the delegates present. Funds may also be raised by voluntary contributions, for the Society's publications, and in any other manner approved by the House of Delegates. Funds may be appropriated by the House of Delegates to defray the expenses of the Society, for publications, and for such other purposes as will promote the welfare of the profession. All resolutions appropriating funds must be referred to the Finance Committee before action is taken thereon.

#### CHAPTER XI.-REFERENDUM.

Section I. A General Meeting of the Society may, by a twothirds vote of the members present, order a general referendum on nay question pending before the House of Delegates, and when so ordered the House of Delegates shall submit such question to the members of the Society, who may vote by mail or in person, and, if the members voting shall comprise a majority of all the members of the Society, a majority of such vote shall determine the question and be binding on the House of Delegates.

Sec. 2. The House of Delegates may, by a two-thirds vote of its members present, submit any question before it to a general referendum, as provided in the preceding section, and the result shall be binding on the House of Delegates.

#### CHAPTER XII. -- COUNTY ASSOCIATIONS.

- Section 1. All county associations now in affiliation with the Connecticut Medical Society shall be component parts of this Society.
- Sec. 2. Each county association shall judge of the qualification of its own members, but as such associations are the only portals to this society and to the American Medical Association, every reputable and legally registered physician who does not practice or claim to practice or lend his support to any exclusive system of medicine, shall be entitled to membership.
- Sec. 3. Any County Medical Association may suspend or expel any member who is guilty of improper or unprofessional conduct, by a two-thirds vote of the members present and voting at any regular meeting, provided due notice has been given on the programme of said meeting at least ten days before its session. When from any cause a member of the Connecticut State Medical Society ceases to be a member of one of the component county medical associations his membership in the Connecticut State Medical Society shall terminate, but any physician who may feel aggrieved by the action of the association of his county in refusing him membership or in suspending or expelling him, shall have the right to appeal to the Council, and its decision shall be final.
- Sec. 4. In hearing appeals the Council may admit oral or written evidence as in its judgment will be best and to most fairly present the facts, but in case of every appeal, both as a Board and as individual councilors in district and county work, efforts at conciliation and compromise shall precede all such hearings.
- Sec. 5. When a member in good standing in a component association moves to another county in this state, his name, on request, shall be transferred, without cost, to the roster of the county into whose jurisdiction he moves.
- Sec. 6. A physician living on or near a county line may hold his membership in that county most convenient for him to attend, on permission of the association in whose jurisdiction he resides.

- Sec. 7. Each component association shall have general direction of the affairs of the profession in its county, and its influence shall be constantly everted for bettering the scientific, moral, and material condition of every physician in the county; and systematic efforts shall be made by each member, and by the Society as a whole, to increase the membership until it embraces every qualified physician in the county.
- Sec. 8. At some meeting in advance of the Annual Session of this Society, each county association shall elect a delegate or delegates to represent it in the House of Delegates of this Society in the proportion of one delegate to each thirty-five members, or any part of that number, and the Secretary of the Association shall send a list of such delegates to the Secretary of this Society at least twenty days before the Annual Session.
- Sec. 9. The Secretary of each component association shall keep a roster of its members and of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of registration in this State, and such other information as may be deemed necessary. In keeping such roster the Secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall be certain to account for every physician who has lived in the county during the year.
- Sec. 10. The Secretary of each component association shall forward its assessment to the Treasurer at least ten days before the Annual Session and its roster of officers and list of non-affiliated physicians of the county to the Secretary of this Society each year twenty days before the Annual Session.
- Sec. 11. The several county medical associations shall have power to adjourn; to call special meetings, as they shall deem expedient; and to adopt such by-laws as they find desirable not contrary to the laws of this State or the charter and by-laws of the Connecticut State Medical Society.

#### CHAPTER XIII. - MISCELLANEOUS.

- Section 1. No address or paper before this Society, except those of the President and orators, shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than once on any subject except by unanimous consent.
- Sec. 2. All papers read before the Society or any of the Sections shall become its property. Each paper shall be deposited with the Secretary when read. No paper shall be read before this Society which has been previously published or read before any other organization.
- Sec. 3. The deliberations of this Society shall be goverened by parliamentary usage as contained in Roberts' Rules of Order, when not in conflict with the charter and by-laws.
- Sec. 4. The Principles of Medical Ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public.

#### CHAPTER XIV. -- AMENDMENTS.

These By-Laws may be amended at any Annual Session by a majority vote of all the delegates present at that session after the amendment has been laid on the table one day.

PRESIDENT'S ADDRESS.



## The President's Address.

WILLIAM L. HIGGINS, M.D., South Coventry.

Having been a member of the House of Representatives in the General Assembly for the past two sessions, I thought that possibly I might in this address, without impropriety, bring to your attention some matters of Legislative interest that have appealed to my heart and mind during this period of service to the state. Many, you know, have deemed it unwise for the physician in active practice to take any prominent part in affairs of state, especially if it involved the necessity of participating in the work of practical politics, which now-a-days seems to he essential to success. Whether this ground is wisely taken I should be loath to decide in a given case; but on the broad question I believe but one answer can be given. Our ability and training along scientific, educational and philanthropic lines is unquestioned and our integrity or purpose unimpeachable, but when it comes to taking a seat in the legislature, many of the laity will gratuitously inform us that they think ministers and doctors ought to keep out of politics. And for young medical men dependent upon their professional work for the support of themselves and a growing family, this would seem to be the only and the proper course for them to pursue. But when a man of our profession gets along to the age of fortyfive or fifty then it seems to me that it is proper, yes, his duty, to get out of his professional shell, if you wll pardon the expression, and in a broader way than ever before, consecrate himself to public duty; and one of the ways in which he may do this is to seek public office. I use the word "seek" advisedly. The way, in my opinion, to seek an office is to be prepared to discharge its duties if the opportunity presents itself. A man of fifty years of age in our profession can bring a rich fund of experience to any office

of a public nature to which he may aspire. Outside of the Clergy, our profession, according to its natural ability and education, has the smallest representation in Halls of Legislation of any class of men. It ought not to be so, and in looking around for a reason, I have come to the conclusion that, meeting as we do men and women of nearly all political and religious beliefs, we become tolerant to them all and in so doing, we lack that peculiar aggressiveness that we find in the man of one idea. Then again our minds are so absorbed in the cause of suffering humanity, the practice of medicine and surgery, and the thousand and one specialties bringing multitudinous cares along diverse lines of thought and work that we have hardly the time or strength to devote to any outside object no matter how beneficent it may be.

My principal interest in legislative matters aside from the amending of the Medical Practice Act and combating the Anti-Vaccinationists has been the Humane and the Penal Institutions. Having had the honor for two sessions to be House Chairman of the committee on Humane Institutions, I have had the opportunity to come into close contact with these institutions and to observe their methods and to appreciate as never before their worth and benefit to the state.

It would be extremely interesting to trace the origin and development of all of these institutions from the beginning of our colonial government up to the present time, but the limit which I have set for this paper forbids. I can give but a brief outline of the subject which I hope will stimulate a desire in you to pursue the subject further to its ultimate conclusion.

Civilization for the most part advances by slow and easy stages. Our forefathers in this state, by their application to duty, their allegiance to the Almighty, and their supreme love of liberty, founded a colony and state whose constitution has been a model for all the states, and even for the National Government, its basic principles and phraseology have been largely copied. The Constitution was supplemented by laws among the first of which dealt with the problems pertaining to the "poor, decayed and impotent

persons; "strangers, vagrants and criminals also coming in for their share of attention; and later the attention of the state was called to its obligations in reference to the sick, the insane, the feeble minded, and imbeciles, the deaf and dumb, the blind, the incurables, the dependent and neglected, the soldiers' orphans, the veterans themselves, the young of both sexes who were in danger of becoming criminals, or leading vicious lives, and last of all the problem of the Epileptic which is in process of solution at the present time. I also ought not to forget that the state is also at the present time considering what shall be done with a class of young men and women who are too old to be sent to the School for Boys at Meriden, or the Industrial School for Girls at Middletown, and whom it would be a pity to send to a jail or State Prison to mix with hardened criminals. Of this I shall have more to say later.

I wish now to say a few words about our general hospitals, before entering more at length upon the subject of the origin, growth and development of our system for the care of the insane, the imbeciles and feeble minded. Our first public hospital was established in 1826 when a charter was granted to the General Hospital Society of Connecticut to establish and maintain a general hospital in the city of New Haven. The hospital was to be a charitable institution and patients belonging to Connecticut were in all cases to be preferred. A contribution of \$100 gave to a donor whether a town, individual or body of individuals the right of naming at any time one indigent person to have the benefit of the hospital free from expense six weeks during the year. No appropriation was at the time made for the hospital and no other hospital was chartered until after 1838. At the present time there are 18 hospitals of this character receiving from the state treasury all the way from \$2,250 to \$10,000, each annually; besides a goodly number of private hospitals and sanitariums that receive no state aid but are either endowed or receive only patients who are able to pay their expenses.

In regard to the insane, the towns in the early period of our history seemed unwilling to care for them, and they were permitted to wander without restraint, often to the endangering of life and property, which led to the passing of the law of 1793. This made it the duty of the civil authority and selectmen of the town, of settlement, of residence, to order all such dangerous insane to be confined in a suitable place. If those responsible did not obey the order, these officials were required themselves to secure proper confinement and oversight. If necessary, upon proper authority, these sufferers might be committed to the county jail, there to remain during their insanity or until released in accordance with law. At the same time authority which had previously existed to commit the insane to workhouses was withdrawn.

In 1797 the section regarding confinement in jail was also repealed. Experience proved that the law of 1793 was inadequate and the town authorities were not always willing to act.

To prevent this, in 1824, any citizen was authorized to complain to one of the civil authorities or selectmen in his town if he found an insane person going at large. If within three days no action was taken, he might make a written complaint under oath to any justice of the peace in the town, informing him that the person was "dangerous and unfit to be without restraint." It was the duty of the justice immediately by warrant to have the person brought before him or some other justice in the town, and if, after inquiry, it was found that the facts alleged were true, he was to order the person confined in a suitable place for as long a time as he deemed proper. If satisfied, at any time, that the person was no longer dangerous, he might order his discharge. These provisions of law all had in mind the protection of the community and did not apply to the harmless insane. Care for them, save through conservators, did not come until later. These laws remained in force until 1838. It is hardly necessary, perhaps, to relate how these unfortunates were cared for before the days

of the improved modern asylum, but it may be mentioned in passing that in a memorial presented to the assembly in 1786 Mary Ward of Stratford stated that for twenty years her husband had been so insane as to be kept chained.

In 1821 the Connecticut Medical Society took steps to ascertain the number of insane persons in the state and their condition. Circulars were sent to clergymen, physicians, and other citizens in each town. Seventy towns reported 510 lunatics and idiots, many of whom were in wretched condition. From fifty-four towns no returns were received. As a result of the investigation the Retreat for the Insane was erected at Hartford with accommodations for fifty patients. In 1830 it was enlarged to care for ninety. A charter was granted in 1822, but it was not used, and another was substituted for it in 1824. The Retreat was to be a private institution under state supervision. The Retreat was designed for those who could not pay for treatment, but on May 19, 1830, the directors passed the following resolutions:

"Resolved, That the managers of the Retreat be authorized to admit indigent lunatics, being inhabitants of this state, whose disease has not exceeded six months at two dollars per week, provided the number of such persons in the institution shall at no time exceed the number of ten; )and provided, also, that no individual shall remain in the institution, upon the said terms, over six months.

"Resolved, that before any indigent lunatic shall receive the benefit of this charity, a certificate shall be lodged with the managers, signed by a magistrate of the town in which said lunatic resides, stating that, from the evidence he has in his possession, he is of the opinion that said lunatic does not own property to the amount of one hundred dollars and that his disease has not exceeded the period of six months."

In the spring of 1837 individuals in the state sent out to the towns a set of questions similar to those of 1821. On the basis of the returns they concluded that there were no fewer than 900 insane persons in the state, about one-half of whom were paupers.

Many others were cared for at home by relatives who could not afford to support them elsewhere. These facts were presented to the assembly in a memorial from the directors of the Retreat for the Insane. This was continued until the next session and a committee of three appointed to investigate. The selectmen of 118 out of 136 towns reported that there were 707 insane and idiotic, divided as follows:

	Males	Females	Total.
Number wholly supported by towns, .	129	192	321
Number partially supported by towns, .	<b>8</b> 6	<b>5</b> 9	145
Number supported by charity,	IOO	141	241
	315	392	707

The committee believed that there were at least 900 insane and idiotic persons in the state and that 60 persons became insane each year. They recommended the establishment of a state institution and suggested the advisability of having it near the Retreat, in order that the two institutions might be under the same medical supervision. They believed that drunkards should be confined as well as the insane, holding that drunkenness was a real disease. In 1839 another committee was appointed and various places were suggested, but the legislature made no appropriation. unanimously recommended the erection of an asylum at Middletown, explaining that while the expense would be great, in the end it would prove true economy, as it would save the expense of supporting those cured by prompt treatment who would be otherwise permanent public charges. In the course of their report they declared, "The Christian and the philanthropist hail with rapture the discovery (for so it may be termed) of that course of treatment and of management which dispels the illusion and restores the deluded maniac to himself and the world. Public provision, however, is necessary, to afford facilities for applying efficiently this course of treatment, and placing the insane under its benign influence. Such we already have in this state, where those who are blessed with competence can avail themselves of its advantages. But to those who have been less favored of heaven, as far as wealth is concerned, its doors are effectually closed. We are cheered, however, with the reflection, that they have their advocates whose voices have reached the legislative ear, and found a response in the patriot's bosom, as is clearly evinced by the benevolent provisions contemplated in the above resolutions. It is true that Connecticut is characterized for her seminaries of learning and benevolent institutions. Well may she point to her renowned colleges, her flourishing academies, her deaf and dumb asylum, her Retreat, and her Penitentiary, and exultingly exclaim 'these are my jewels.' But this exultation can never be triumphant while our ears are saluted by the ravings of our penniless maniacs, chained to blocks or incarcerated in dungeons, admonishing us, though we have done much, until they are suitably provided for the work is not complete."

After resorting to one expedient and then another during a long term of years, no measure adopted proving satisfactory, the legislature passed an act in 1866 creating a State Hospital for the Insane which was located at Middletown. Its average population has increased from 225 in the year 1870 to about 2,500 at the present time.

It is interesting to note that in 1877 a commission was appointed to see about further accommodation for indigent insane persons who could not be at that time provided for at Middletown. An appropriation of \$6,000 was made to buy the Soldiers' Orphans Home at Mansfield (the present location of the Connecticut Agricultural College) and furnish it. This sum was found to be inadequate, and the assembly tooks steps to enlarge the hospital at Middletown. The number of insane kept increasing so rapidly and the institution having become so large at Middletown, it was thought wise in 1903 to establish a new hospital at Norwich, and accommodations are planned for the care of about 1,200 patients, which, if the plant is developed as planned, will afford abundant facilities for the care of those unfortunates for many years to come.

It seems to me that our methods and conveniences for caring for these people cannot be much improved unless some provision might be made to make more secure the incarceration of the criminal insane. The work of our hospitals for the sick is too well known to need any word of explanation here, but I wish to call attention to a class of unfortunates that I saw so many of on my visit to the Connecticut School for Imbeciles at Lakeville two vears ago. The United States Census of 1850 called attention to the problem of idiocy by reporting 287 idiots in Connecticut. the basis of the more accurate statistics of Massachusetts, a joint select committee on idiocy stated, in 1855, that there were certainly 500 idiots in Connecticut, four-fifths of them, to a greater or less degree, objects of public charity. Upon these recommendations a commission was appointed which reported in the following year, 1856. Returns were received from 105 out of 155 towns. The selectmen of one town reported 14 idiots, while a physician declared there were none. On a basis of the population of 88 towns which reported 514 idiots, there would have been a little more than 1,000 idiots in the State. The estimate based on the 10 towns which made complete returns would have been 1,428. The commission concluded that there were probably 1,100 to 1,200 in all. In 30 per cent. of the cases in which the age was given, it was less than 20. The commission found that the State was, as it were, manufacturing idiots. In one instance, where a pauper female idiot lived in one town, the town authorities hired an idiot belonging to another town, and not then a pauper, to marry her, and the result has been that the town to which the male idiot belongs has for many years had to support the pair and three idiot children. Two or three towns had families all the members of which were idiots. There were two families with five idiots each. The treatment and care of idiots was also found to be far from satisfactory and in many instances appalling. The cost of idiocy was found to be great.

The commission recommended the establishment of a school, and they recommended that it be a private state-aided institution rather than one controlled by the State, as then, they

thought, it would not be affected by politics, would be run more economically, and be more frequently an object of charity. They also proposed that when \$15,000 had been raised, the State contribute \$20,000. Imperative as was the need, the project was defeated by the casting vote of the president of the Senate after the House had voted the appropriation. The next step was taken by Dr. Henry M. Knight, a member of the commission who, in 1859, established in Lakeville a school for imbeciles with one pupil. The Legislature of 1860 authorized the governor to spend not more than \$1,500 annually for the support of indigent idiotic children in Doctor Knight's school. The size of the school has gradually increased until at the present time over 250 can be accommodated, and the State pays nearly \$50,000 towards their support, training, and education. The school has a very efficient superintendent in the person of Dr. George H. Knight, one of our fellow members and a son of the founder of the institution. He is doing a grand work for these feeble minded, epileptics, and imbeciles who are under his care. (I had intended to speak of our hopes and plans as a society for the treatment and care of the epileptics as a class, but the report of our committee vesterday covers the matter fully and renders it quite unnecessary for me toadd anything further.) The committee will see from the history that I have traced of the gradual development of sentiment and its crystallization into laws for the humanitarian care and treatment of the insane and the feeble minded, that it is being repeated in our efforts for the establishment of an epileptic colony in the State. I hope the day is not far distant when it will be an accomplished fact. In connection with this subject I ought to refer to the fact that in 1895 the Legislature passed a law forbidding any man or woman, either of whom is epileptic, imbecile, or feeble minded, to intermarry. Any one knowingly aiding in securing such a marriage shall be fined not more than \$1,000 or imprisoned not more than five years.

During the past three years I have made several visits to the State Prison, the Connecticut School for Boys at Meriden, the Industrial School for Girls at Middletown, and to various jails in the State, and I was impressed that there is something lacking in our penal system. Our laws provide adequately for punishment, but what would be of greater value to all concerned and the community at large would be a true reformatory institution where self-control, civil government, ethics, morals, and religious instruction would be given and a trade or trades could be taught. Such a place for young men and another for young women between the ages, say, of 16 and 25 would accomplish a vast amount of good, and such a place for the care and treatment of drunkards would be of inestimable value. I believe every physician should interest himself in this subject and not rest content until such an institution is established in this State. The State is doing a great deal of good work, and we ought not to be impatient if she does not do at once all we so earnestly desire.

Allow me to state what she is expending along the lines we have been speaking of and those closely allied. The strictly humane institutions of this State received in 1906 from the State treasury, \$834,132.51 Sick and wounded soldiers, . 148,317.03 Deceased soldiers, . 13,431.40 Soldiers' children, . 784.00 State paupers, 5,016.02 School for boys, 69,662.10 School for girls, . . 52,992.03 State Board of Health, . 11,641.91 State Board of Charities, 4,652.42 County health officers, . 8,589.97 Board of prisoners at county jails, . 109,400.91 Board of prisoners at State Prison, . 28,041.36 . making a total of \$1,285,591.66, plus interest on money invested in buildings and land, etc., amounting to many thousands of dollars more.

In conclusion I would like to speak briefly of some other places the committee visited and of the good work which is being done for some of our other unfortunates. The deaf and dumb here in Hartford at the American School and at the Mystic Oral School attracted our attention. At the latter place the purely oral methods are advertised to be taught, but from our observation it was not so pure a method as its name would indicate. I mean by that, that some signs were used by both teachers and pupils, - perhaps for the most part, however, they were involuntary. It is wonderful how rapidly these unfortunates learn at the hands of experienced instructors. Then the Industrial School for Girls came in for consideration. It is doing very efficient work. Taking chastity as the standard, upwards of 90 per cent, the past five or ten years have lived lives of rectitude after leaving the institution. And when you consider that these girls came from the fag ends of society so to speak, coming, as they do, from the lower walks of life, it is a great credit to those who have charge of their institutional career. They go forth with a knowledge of good housekeeping, of dressmaking, and domestic science in general, with some knowledge of music, and well grounded in morals, ethics, and with a good rudimentary book education according to their individual capacity to learn. The school, at present, has about 238 members.

Arriving at Meriden, after a most excellent dinner we were invited into the chapel and listened with much pleasure to songs by a congregation of 434 boys and to several selections by the brass band consisting of about a dozen instruments. Then after a few remarks by members of the committee we inspected the several dormitories and schoolrooms, and saw the boys at their benches in the shops where they immediately went upon leaving the chapel. Instruction is given in carpentering, iron work, farming in its various branches, printing, tailoring, chair making, shoe making, laundry, etc. This school, while established for delinguent and wayward boys from seven to sixteen years of age, gives advantages which, to use the words of a judge of our Superior Court, "I wish some of our good boys might enjoy." If any of you gentlemen are elected to the Legislature I can offer you no better wish than this, that you may be appointed a member of the committee on Humane Institutions.



# PAPERS ON SPECIAL SUBJECTS.



# The Use of Sodium Citrate in Infant Feeding

H. MERRIMAN STEELE, M.D., New Haven, Conn.

In 1893 Dr. E. A. Wright of London, England, wrote a short note published in the Lancet advocating the addition of sodium citrate to milk in the feeding of infants and invalids. He was led to this suggestion through the work of Arthurs and Pages, who had found that cow's milk when treated with oxalates and fluorides did not clot with rennet because the lime salts of the milk had been precipitated by their addition. "If, on the contrary," to quote Dr. Poynton, "instead of adding these salts lime salts were added to the milk the clot that formed with rennet was denser than usual. Dr. Wright applied this principle to the question of infant feeding and pointed out there are two forms of milk curdling: The first with rennet in which the clot is firm; the other with acid in which the cloth is loose. The first is the clot that forms when the stomach is empty. He believed that much of the milk dyspepsia of infants was due to the indigestibility of the rennet curd of cow's milk, for it is rennet curd that is formed when milk is taken on an empty stomach. If then, as Arthurs and Pages observed, some of the lime salts in cow's milk are precipitated the clotting by the rennet will be delayed in time and be less firm in its consistency and thus become more digestible. Further, cow's milk can afford this precipitation of some of the lime salts because they are present in it in greater excess as compared with human milk. The oxalates and fluorides being poisonous salts Dr. Wright suggested the use of sodium citrate as the reagent, it having the same power and being harmless to the body.

This idea of Dr. Wright, so far as I am able to find, passed untried for eleven years when, August 13, 1904, Dr. F. J. Poynton of the Great Ormond Street Hospital for Sick Children, London, in an address published in the *Lancet*, gave the results of his experiments and enthusiastically recommended Dr. Wright's suggestion.

Following Dr. Poynton's article appeared papers by Variot, Vanderslice, Shaw, Auuset, Guyader and others all attracting considerable attention and answers both pro and con.

Before going into the practical side of the question in which I feel sure you are all more interested, I must beg a few moments to briefly bring together some of our today notions regarding the chemistry of cow's milk. In so doing I must first express my appreciation of a recent editorial by Dr. T. S. Southworth in the Archives of Pediatrics, from which I freely quote.

Before the publications of Van Slyke of this country, there were but little data available capable of furnishing important deductions applicable to infant feeding and infant digestion. Clinically and experimentally many valuable rules had been developed but without any very systematic effort to find reasons for their successful employment. The chemistry of cow's milk by older treatises gave little assistance. From Van Slyke's data it was learned "that the casein in suspension in cow's milk which, as calcium casein, normally holds in combination a definite amount of calcium, is readily transformed by the rennet ferment in a weakly acid medium into the calcium paracasein or junket clot. By the further addition of acid the clot is changed into acid paracasein curd. No such clotting or curdling by rennet will take place if the milk is made alkaline, but subsequent neutralization of an alkalinized milk by a slight excess of acid will restore its susceptibility to rennet action. A moderate acidity enhances the activity of rennet, but with the absence of rennet sufficient acid to fully satisfy the casein's affinity for acid so changes the casein into acid casein curd that the subsequent addition of rennet produces no alteration in the type of curd.

"In short, the power of casein to combine either with alkalies or acids is so definite that it can be utilized to modify or prevent the formation of the large, tough contractile curds which result to a greater or lesser degree from the combined action of rennet and acid upon cow's milk when introduced into the human stomach."

Thus it is found that "addition of alkalies to milk not only forms new chemical compounds with casein, but produces distinct effects upon the processes of digestion. A small amount of the alkali simply delays curdling pending the neutralization of the alkali by the acids present in or secreted by the stomach. This delay alone tends to prevent the curdling of the milk in large, solid masses and favors the formation of smaller and more floculent curds. On the other hand, if the alkalinization is sufficient not to be overcome readily, part of the still uncurded milk will probably escape through the pylorus to be digested in the intestine and so relieve the stomach of part of its work.

"It is evident agents capable of such radical influence upon the processes of digestion should not be used without careful discrimination.

"They may be of extreme value in the feeding of infants unaccustomed to the digestion of cow's milk or with weakened gastric digestion, but we must keep in mind that the infant's stomach must be developed during infancy and that it gains strength only when a carefully graded increase of work is demanded of it."

Without going further into the chemistry of additions of the various alkalies in common use let us simply consider the decalcification of casein by the citric acid radical of citrate of soda which by test tube experiment gives a much more flocculent, soft and probably more easily digested curd when acted upon by the gastric secretions than milk not so treated.

The method of procedure as suggested by Dr. Wright and Poynton is most simple. To a certain mixture of milk one to three grains of sodium citrate to the ounce of milk is added. As the salt is very readily soluble in water the required amount to be used to each ounce of milk is written for to the teaspoonful dose; this solution to be given the mother with directions to add as many teaspoonfuls of the solution of the salt as there are ounces of milk in the feeding. For dispensary and general practice this is most convenient. Their rule has been followed by most investigators in the use of this method of infant feeding.

From the literature brilliant results have obtained from sodium citrate addition to the milk in institutional babies suffering from gastro-intestinal indigestion, habitual vomiting and offensive, undigested stools; not gaining in weight and generally poorly. But in a careful review of the literature it does not appear to me that the point at which sodium citrate is directly aimed has been sufficiently emphasized — i. e., to particularly help in the digestion of the proteids of milk. It has been given, I am sure, in cases where the vomiting and general ill being was due to other causes than inability to digest proteid. Outside the literature on personal observation and questioning I have found it administered for any kind of digestive upset being looked upon by some as the Royal Road to Infant Feeding. And here, in the literature, and backing of its warmest advocates is a teaching almost malicious to one not reading guardedly. That is, in brief: If enough sodium citrate is used one need not bother with dilutions of cow's milk to any great extent: meaning, one may give a proteid manifestly too high if guarded by the drug.

This thought, and teaching this principle I believe wrong. A four weeks baby should not have three parts whole milk and one part water, or what's more, absolutely undiluted milk guarded as regards its proteid constituent by a substance absolutely foreign to its digestive apparatus. I cannot make myself see how we are gaining by this over feeding of a constituent of cow's milk simply because we have chemically altered it to a more flocculent, soft, curd possibly easier of digestion. By the growing baby so much proteid will he absorbed as the organism requires and the excess

will go to waste and be excreted as waste no matter what its form, and, too, it is believed this excess of nature's demands is harmful in the end.

Under feeding is not a common danger in early infancy as some of the advocates of sodium citrate contend. I believe all of us will agree we seldom see a case where an artificially fed baby is giving symptoms of under feeding. Maybe he is not assimilating, not gaining, has indigestion, etc., ad infinitum, but being under fed is hard to conceive. An over dilution of milk is quite unknown in my experience except in Dispensary cases where a baby brought in manifestly over fed has done well upon a weak difution and so well the mother has gone on for weeks without reporting or changing the formula until the baby's lack in gain and apparent hunger has led her to seek fresh advice:

In my personal experience with sodium citrate I have found no advantage in its use over the general modifications in vogue since Dr. Rotch so clearly outlined the principles. Neither do I find advocates amongst those of my acquaintance with whom I have talked concerning their use of it in private practice.

In a series of 14 cases (2 Dispensary and 12 private) in which I have felt I have had occasion to administer the salt, I have but one case in which I can believe it had any value. To be sure in these cases I continued my regular practice of trying to modify the cow's milk to suit the individual case. In all the fundamental cause for its exhibition was present, i. e., difficulty in digesting proteid as manifested by vomiting large tough curds and the finding of undigested proteid curds in the stools.

In place of increasing the proteid for reason these babies werelosing ground in weight and development and adding sodium: citrate to make a digestible casein I in each case reduced theproteid but hand in hand added the citrate as by direction. Oncomparison with similar cases before the salt recommended I cannot convince myself my results were any better by its addition or, in fact, any different. The one exception was a baby born at full term, well and strong, the last of a family of seven none of whom the mother had been able to nurse satisfactorily. It was decided not to try maternal nursing in this case, so in consequence, I was called in to feed.

Beginning with a very low modification of 10% cow's milk, milk sugar, lime water and water to try to accustom his digestive apparatus to this foreign food, I soon found myself in a quandary, He did not gain in weight, he had colic and constantly vomited large, tough curds and, withal, it was very apparent the baby was hungry. On question I learned the preceding babies had all been very "hearty eaters" and vulgarly speaking, had been "stuffed" with modifications of cow's milk and Mellin's food at one month suitable for six months for the average baby. In so much as the preceding six had done well and had apparently a great tolerance for cow's milk, I decided to give my little patient a strong modification of the proteid guarded by sodium citrate. By the time he was a month old he received a milk sufficient for an average four months old baby. With the addition of sodium citrate he digested it perfectly and had no symptoms of gastric or intestinal indigestion. Stopping its use for even twenty-four hours caused a relapse to be controlled by its exhibition. He is now 5 months old and weighs 19 pounds and has not had sodium citrate for one month. There is no doubt in my mind that the sodium citrate controlled this baby's intolerance to casein, but I consider its action that of a drug; not a proper modifier of cow's milk for general routine use and the whole solution of artificial infant feeding.

In closing permit me to quote a pertinent remark by Dr. Chapin of New York, dealing on this subject in a discussion following a paper of Dr. Shaw on the Use of Citrate of Soda.

"In adding anything to cow's milk we must keep two points in mind: First, the immediate effect of what is added; and secondly, its remote effect. With reference to anything added in a chemical way we can easily determine the immediate effect. By a large addition of alkalies or of the substance just mentioned

(sodium citrate) we can get immediate effects when it is desirable, but the more we tamper with milk the better our chances of eventually doing more harm than good. I have tried adding citrate of sodium to milk and it certainly makes it look different from pure milk, but I cannot help from believing that this sort of research is in the wrong direction if we are trying to get something to use as a routine practice in the feeding of infants. Aside from the nutritional value of milk we must consider that it has important developmental function and that milk and food principles are not interchangeable. Soluble proteids do not have the same effect as insoluble proteids. This is an important law that we must bear in mind. It is an interesting study and we can tell pretty closely what this preparation is going to do with milk, but I think it is better to interfere with milk chemically as little as possible with reference to the good of the child."

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#### DISCUSSION.

Dr. Walter G. Murphy (East Hartford): My attention was called to the use of sodium citrate by an article by Dr. Shaw of Albany, in the Archives of Pediatrics about a year and a half ago. Dr. Shaw made some experiments with sodium citrate and reported twenty-two cases clinically fed on sodium citrate solution and with most excellent results.

He showed conclusively that the addition of sodium citrate to cow's milk changed the character of the curd from the dense, heavy curd to one more soluble and pointed out that to overcome a thin curd a weak solution should be used, but a stronger solution was required to overcome a curd of greater density. I took up the use of sodium citrate and my first experiences were numerous.

A year ago at the American Medical Association in Boston, I heard a paper of Dr. Van Shire of Chicago, and recognized then that the aim of the calcified milk was to overcome the proteid indigestion. On that ground I have since used the sodium citrate and purely in stomach cases. In cases of gastric catarrh with vomiting and in cases of offensive movements, I have found the sodium citrate of very great value. I do not think it applies to all cases. I think it is limited. I think it is to be used as a remedy in specific, pathological conditions. I do not think it is to be used in all cases of infant feeding. I agree with the paper of the doctor in general, as he has found that same condition. I agree with the remarks of Dr. Chapin in the discussion of Dr. Shaw's paper that the solution of infant feeding is not through addition of chemicals, but I believe that sodium citrate properly employed should be used to break up the proteid in cases diagnosed as purely stomach cases. I believe this remedy is of value.

Dr. C. N. Haskell (Bridgeport): I am not prepared to speak upon this subject specially, but I want to call the attention of the members to an article in one of the recent Medical Journals; I do not remember the author's name, or the name of the Journal. It has reference to fat as a cause of most of the proteid indigestion in infant feeding. This writer, whose name I do not remember, I think a Chicago man, has proven beyond question that fat free milk produces no curds whatever, and that children can take milk free from fat who are supposed to be suffering from proteid indigestion.

This author claims that all of the indigestion, which had previously been determined as caused by proteid, has been done away with by entirely removing the fat from milk. I think if this is true, it is worthy of consideration. I would like to hear what Dr. Steele has to say.

Dr. H. M. Steele (New Haven): My particular point in speaking against sodium citrate is that it should not be used as a routine method. My experience is that it is used as a drug. I agree with Dr. Murphy, it is used as a drug. For proteid experiments it is very valuable, but not to be used generally. It is not right to give undiluted milk and then aid digestion with sodium citrate, as that is giving a great excess of food to the baby, which is not necessary.

Speaking of the fat, as to Dr. Haskell's remarks, I think that goes in line of feeding buttermilk. I do not see how the mere reduction of fat could straighten out the whole problem of feeding. Buttermilk is used successfully in some cases of gastro-intestinal indigestion.

## The Neurasthenic Neuralgias

FRANK K. HALLOCK, M.D., Cromwell.

The term neurasthenic or neurotic neuralgia, unsatisfactory as it may be, is nevertheless of value in describing a certain class of painful peripheral affections occurring in neurasthenic or allied conditions. The recognition of such a species of neuralgia is important from the fact that frequently the localized pain, emphasized and treated as an entity, is not relieved, but on the contrary is fastened more deeply upon the individual. In reality the neuralgia should be considered merely a symptom resulting from the fundamentally weakened state of the organism.

The term should be applied to pain which has, in the main, three characteristics. First, the affected area is more or less constant and restricted. Second, the part of the body which is the seat of the painful sensations is traversed by a sensory nerve trunk, or represents an area fairly well defined by the anatomical distribution of a branch of a sensory nerve. Third, the localized pain is subject to exacerbations.

These characteristics, it will be observed, may be applied in general to all forms of neuralgia. It will be necessary therefore, to differentiate the neurasthenic from the profound migrainic, sciatic, and all the other types of neuralgia due to specific lesion of nerve or ganglion, to toxic and infectious agents, to disease of the blood vessels, to defects in the blood or of the body metabolism, or to any other definite physical disorder.

Anæmia, rheumatism, gout, chronic intestinal toxæmia, have an effect on the organism as a whole, thereby lowering the general nervous tone and producing a neurasthenic condition of varying degree but we would not call the neuralgia resulting from any of these diseases neurasthenic. The term neurasthenic can be applied

only when the neurasthenia is the chief or prominent feature of the case, and the specific disease, whatever it may be, is incidental or contributing in a minor way to the general state. Whenever the disease or other agency is strongly operative and the individual is decidedly neurotic, the neuralgia is uniformly increased both as to the intensity and disabling quality. This fact renders the diagnosis still more difficult especially as the clinical picture, of the neuralgia, whether neurasthenic or due to physical ailment, is practically the same.

A brief reference to painful conditions of the feet will be of service in elucidating still further the use of the term neurasthenic. If there exists an anatomical defect due to injury, strain or simple relaxation of the tissues of the arch, and the orthopedist can correct the pain by support or specially constructed shoe, then the metatarsalgia should not be called neurotic. When the pain, however, is not relieved and no special anatomical departure from the normal is observable or when, as sometimes happens, the pain passes up into the leg or thigh, or over to the other foot, then the term neurotic is applicable. If an anatomical defect is present in what would be called adequate degree and a proper support can be worn and yet the neuralgia is not relieved, or if hyperæsthesia prevents the corrective device being applied, then doubt would certainly exist as to the relative importance of the local condition and of the inherent neurotic character of the patient. Fortunately an exact diagnosis is not so necessary, if only the two factors in the case, physical as well as neurotic, are properly recognized. The tangible factor, or material basis for the neuralgia, should in all cases receive most thorough attention and when the neurotic element exists this should be understandingly dealt with.

Any one sufficiently familiar with neurasthenic, hysteric, and hypochondriac states can usually determine the type of neuralgia which should be termed neurotic. The reasons for making the diagnosis are somewhat subtle and hard to define. This is because, in most of the cases there is a more or less subjective or intangible element which bespeaks a 'central, rather than purely peripheral origin of the pain.

Generalizing as broadly as possible, my own experience has led me to formulate the following characteristics as diagnostic of the typical neurotic neuralgias. First, psychic influences and marked fluctuations in the mental state, as well as in the body condition, produce noticeable variations in the degree of pain, relatively greater in the neurotic neuralgias than in those due to more definite physical causes. Second, neurotic neuralgia is often characterized as being peculiarly difficult to bear, in other words it has a mentally disorganizing or demoralizing quality. It is not because the neuralgia is so severe, but it insidiously undermines the will and power of the individual to endure it with patience and fortitude as one would bear ordinary pain of corresponding degree. Third, neurotic neuralgia may be slow and obstinate, but it is invariably curable, unless the patient is a profound chronic invalid and will not respond to nervous and bodily upbuilding.

The etiology of this class of neuralgias may be briefly stated as follows; First, they occur only in the neurasthenic condition, or its equivalent, however produced. Second, superimposed upon this condition then is an exciting cause, such as local or general strain, exposure to wind, cold and wet, a blow or fall, emotional disturbance or mental shock, or there may be no appreciable exciting cause. Undoubtedly one exists, however, if our knowledge of the bio-chemism of the rissues and of the physiology of the nervous system was sufficient to enable us to discover it. In any case the point to bear in mind is that the neuralgias here referred to have practically no cause which is adequate to their production without the presence of the fundamental below-par or neurasthenic state.

Anatomically the neurasthenic may follow the usual classification for other neuralgias. t. Trigeminal; 2. cervico-occipital; 3. cervico-brachial; 4. brachial; 5. intercostal, including mastodynia; 6. lumbar plexus, including lumbo-abdominal and regions supplied by the cutaneous femoris lateralis, cruralis and obturatorius; 7. sacral plexus, including sciatica, neuralgia of the genital organs and of the anal region; 8. coccygodynia; 9. achillodynia, tarsalgia and metatarsalgia. In classifying the neurasthenic neuralgias from a clinical standpoint it will be observed that they occupy a position midway between the more or less indefinite and subjective paraesthesiae on one hand, and on the other the very definite and objective condition resulting from neuritis or other pathological irritation. It will be possible, therefore, according to the degree to which one or the other of these extremes is approached, to subdivide the neuralgias into two varieties. One is non-objective, that is, the pain occurs with very slight or no concomitant physical symptoms; the other is objective, that is, the pain is accompanied by localized symptoms, sensory vaso-motor, secretory.

The non-objective neuralgias should not be confounded with the various paraesthesiae common to neurasthenia, hysteria, and hypochondria. When the paraesthesiae, however, assume the character of distinctly painful sensations, they may be said to approach the neuralgic condition and it may, perhaps, be proper to speak of a paraesthesic form of neurasthenic neuralgia. The painful area is not as clearly limited to the distribution of a sensory nerve and the character of the sensation is not persistently severe nor deep tissue involving. The pain itself may be fleeting, transitory, often changing its location, or fixed always to the same locality. It may recur with regularity, or be very irregular with the intevals between entirely normal. It may be quite acute, of a stinging character, or be a dull and very persistent ache, such as the low grade constitutional headache or backache. F. Lots<sup>1</sup> classifies the so-called "nervous pains" as the highest grade paraesthesiae, but from the standpoint of severity they are the lowest grade of all neuralgic manifestations.

Non-objective neurasthenic neuralgia also manifests itself in another form, namely, as a result or relic of repeated attacks, or of an antecedent neuritis, or what is quite likely an antecedent neuralgia with objective symptoms. This form, as a rule, does not depart from its customary location. Its nature is that of a habit sensation which persist in recurring long after the physical evidence

<sup>1</sup> Therapeut. Monatschrift, Berlin, 1906, 105.

or justification for it have disappeared. Weir Mitchell in speaking of injuries to nerves cites some well-defined cases and explains its neuralgic habit as psychic.

Much more profound and positive forms of non-objective neurasthenic neuralgia occur that the just mentioned paraesthesic or nervous pain and habit pain varieties. These may be classified as idiopathic. They may appear spontaneously, so to speak, that is without appreciable cause or perhaps result from exposure to cold wind or dampness. Most frequently they are one of the sequelae of general over exertion or body strain. When this is the case the favorite location of the neuralgic affection is the dorso-lumbar region. It will be recognized as a definite persistent backache, not the low-grade paraesthesic backache already mentioned. the milder forms there is no special tenderness to pressure on the vertebrae and movements of the body do not elicit pain. In the severer forms there is sensitiveness, tenderness, and pain from motion of the trunk. The hysteric invalid is especially liable to these hyperaesthetic symptoms. Many cases of "spinal irritation," so called, can best be interpreted in this manner. When emotional disturbance or mental strain is an etiological factor the most common seat of the neuralgia is the occipital or cervico-occipital region. The occupation neuroses of the sensory type, termed by Jeliffe' the "Neuritides," due to excessive use of the extremities in sport or work belong under this heading and are included chiefly under the name cervico-brachial, brachial, lumbo-sacral and sciatic neuralgias. Pain and tenderness to pressure may be the chief and only symptom of these latter forms with slight evidences of vasomotor disturbance during exacerbations, or the objective symptoms may be pronounced and persistent assuming the neuritic type of neuralgia. Months are frequently required for a cure and often it departs only when the neurasthenia goes.

The term neurasthenic should, perhaps, be strictly limited to the neuralgias which are non-objective, that is, without marked concomitant physical symptoms. E. Jendrassik<sup>2</sup> so declares his

<sup>1</sup> Merck's Archives, 1905.

<sup>&</sup>lt;sup>2</sup> Deutsche Med. Wochenschrift, 1902.

conviction and in establishing the diagnosis brings out the fact, which is almost pathognomonic, that the patient exhibits the pain more in his description than in his appearance. Nearly all writers, however, include in their conception of neurasthenic neuralgias that form which is accompanied by local symptoms. In as much as neuritis, in its clinical aspects, most closely resembles the objective form of neurasthenic neuralgia our attention will be directed to a consideration of the relationship between these two conditions.

The difficulty in distinguishing a neuralgia with objective symptoms from a neuritis is usually greatest in the brachial, cervico-brachial and sciatic areas. The reason for this is obvious, namely, the free and more or less constant movement of the upper and lower extremities favors the development of the highest degree of peripheral nerve irritation. The cervico-occipital, intercostal, and lumbar regions, although subject to considerable excitation by motions of the head and trunk, are prone to pure neuralgic rather than neuritic manifestations. The neurasthenic type of painful affections of the trigeminus is capable of being separated from the diseased nerve or ganglion form by the fact that it is attended by fewer objective symptoms, the paroxysms are less violent and in the intervals between the pain is relatively less severe.

Of all the theories which have merited attention, the proposition of Benedict, that all neuralgias, at least all the peripheral neuralgias, are due to a mild grade neuritis, most claims our consideration. As Erb² says, this cannot be proved or disproved, but the proposition is certainly of value from an etiological standpoint. The neuralgias with well-marked objective symptoms are very suggestive of a neuritic or other condition much akin to it. Indeed the degree of tenderness of a nerve as well as the other evidence of local disturbance are so decided that sometimes it is well-nigh impossible to diagnose between a neuritis and a neuralgia. As a matter of fact, fully nine-tenths of all such cases are

<sup>&</sup>lt;sup>1</sup> Ziemssen's Cyclopedia, XI.

<sup>2</sup> Idem.

called neuritis. There can be no doubt, however, in some of these instances the diagnosis should have been neurasthenic neuralgia. Thus, in genuine neuritis we find the physical symptoms more definite, tangible and constant. In neuralgia, on the other hand, we may note marked pain and consequent disability coupled with the other objective signs of an apparent neuritis. A few days later, following a period of extra good sleeping or the reception of some favorable news, nearly all these symptoms decrease in intensity to a surprising degree. This striking fluctuation in the symptoms make it impossible for us to reconcile such behavior on the part of nerve with our conception of an actual interstitial or parenchymatous inflammation. Whatever the peripheral irritation may be the pathological understanding of it will fit the symptomatology much better if it is considered to be of the nature of a perineuritis rather than a neuritis.

The clinical diagnosis between neuritis and neuralgia may be summarized as follows; The motor element is the chief differentiating characteristic. In neuralgia there is no true loss of power and the pain does not materially restrict the movement or manipulation of the affected part. In neuritis proper the motor disability is present in some degree and varies from paresis to paralysis. Both motor and sensory symptoms occur earlier and are more sharply defined in neuritis, the swelling of the nerve being more evident and continuous throughout its length and without the presence of the points of Valleix. The pain itself is generally more continuous in neuritis and more paroxysmal in neuralgia. Atrophy and anaesthesia occurring with the paralysis are not present in neuralgia.

Everyone studying a series of these neuritic cases will soon reach the conclusion, which is much more evident in the non-objective neuralgias, namely, that the local manifestations are dependent to a considerable degree upon an irritative condition which is central rather than peripheral. Oppenheim believes that in many instances the increased excitability of the sensory nerves

Berliner Klin. Wochenschrift, 1898.

is of central origin, even when the nerve trunk shows some tenderness to pressure. The presence of this latter symptom he considers by no means sufficient to establish a diagnosis of neuritis. In this connection it is important to bear in mind the reflex or referred pains due to visceral disorder. The pain which may simulate very closely a neurasthenic neuralgia being referred to the periphery through the medium of the cerebro-spinal nerves as shown by the studies of Dana<sup>1</sup>, Head<sup>2</sup>, and J. MacKenzie<sup>3</sup>.

The theory held by Gowers and Starr' offers a very plausible explanation of a central origin or factor in the production of neuralgia. It is a fact, demonstrated by cases of organic disease, that irritation of the substance of Rolando or of the central sensory tracts may cause pain in the periphery. It is in the substance of Rolando in the spinal cord or brain axis that the sensory nerves end. This peculiar gelatinous substance of delicate, close, meshlike structure with its numerous cells and nuclei could readily be affected by disturbances of nutrition or by vasomotor conditions. Being thus irritated, painful sensations would be produced and referred to the periphery.

Summing up the pathology, or more properly, the theoretical interpretation of the origin of neurasthenic neuralgias we may conclude that there exists in all cases a definite central element or factor; that in the non-objective forms the central is relatively greater than the peripheral element, the latter being merely the external manifestation of a disturbed condition of an internal or sensory nerve center or tract; that in the objective or neuritic neuralgia the same postulate holds true, the peripheral manifestation simply being increased in extent or degree; and finally that in all cases where the peripheral element operates as a factor in the production of the pain, it is best explained as some form of perineuritic irritation.

<sup>&</sup>lt;sup>1</sup> N. Y. Med. Jo., 1887.

<sup>&</sup>lt;sup>2</sup> Brain, 1893, 94, 96.

<sup>3</sup> Brain, 1902.

<sup>\*</sup> Diseases of Nervous System.

Symptomatology.

The summary here given is intended to include, under the respective headings, the symptoms of all varieties of neurasthenic neuralgia ranging from the paraesthesic to the neuritic type.

Sensitiveness of the nerve trunk.

Careful pressure of the neuralgic area will nearly always reveal the fact that the underlying nerve trunk or its subdivision is involved. It is sensitive and tender and in extreme cases may apparently be enlarged. In the milder forms of non-objective neuralgia no special evidence of sensory nerve involvement, as a rule, can be established. Also, in cases essentially paroxysmal, there may be, in the interval between the attacks, no demonstrable nerve sensitiveness. The tenderness to pressure may be uniform, or frequently points of increased sensibility will be found. These special points, or Valleix's points occur along the course of the nerve and most commonly when it comes nearer the surface, or emerges from a foramen, or muscle, or lies upon a bone. There may be one or more of these points and they may disappear and reappear, or their locality may shift. In neuralgia of extremities a painful or sensitive spot will sometimes be found at or near the exit of the nerve, from the vertebral foramen. Such spots, which are generally separated from the neuralgic area are the so-called points douloureux apoplysaires of Trousseau. The effect of pressure upon all these pain points is variable. In some cases it will induce a neuralgic paroxysm. In others, firm pressure on the point will lessen or even dissipate the pain. Their importance has been somewhat exaggerated by the earlier writers on neuralgia.

## The pain.

The character of the neuralgic pain is variously described. At times it may be absent or there may be simply the sensation of heaviness or weariness. In some cases it is a constant ache varying in intensity. In others it is spoken of as a burning or boring, or stabbing pain, either sharp or dull. In marked neuropathic

patients the sensation is sometimes pictured as though the nerves were pinched or pulled by tweezers, or as if they were touched with a red hot iron. In these extreme cases, chiefly hysteric, the limits of the pain conducting power of the nerve appear to be surpassed, the patient being carried into a state of agony which is essentially psychic. The pain may be limited to a single point or spot, but usually a more extended area is involved. It may be described as radiating from the center to the periphery or vice versa.

The exacerbations or neuralgic paroxysms, as regards frequency, duration, and intensity, occur in all possible variations. The intervals between the attacks may be minutes, hours, days, or weeks. The length of the paroxysm varies from a single sharp twinge to hours of increased steady pain. Usually there is considerable irregularity in the occurrence of attacks, but occasionally there exists a remarkably exact periodicity.

Disturbance of the skin sensibility is present in some form in the majority of cases. Its fluctuation and variation is generally considerable and this fact Eichorst' considers to be one of the distinguishing features of neurasthenic neuralgia. The change in the character of the symptoms elicited by various tests appears in some instances to be almost a matter of caprice. This, however, is not true, although cases with a marked hysteric or hypochondriac element do suggest this type of behavior.

Anaesthesia and analgesia are never seen, but a condition of hypaesthesia and hypalgesia is occasionally present in old cases. A state of hyperalgesia and hyperaesthesia is very apt to occur at some time in the course of the neuralgia. In the exacerbations and in the earlier and more acute stages one of the most frequent combinations is hyperalgesia, as shown by pin prick, and at the same time hypaesthesia, as demonstrated by diminished sensibility to a camel's hair brush.

The temperature sense is always present and in most cases there is some increased or decreased sensitiveness to heat or cold. The

Deutsche Klinik, Wien u. Berlin, 1901, 4, 1.

surface temperature may show a slight departure from the normal according to the activity or the sluggishness of the local vasometer condition. Cold applications, as a rule, are not as acceptable as warm. It is curious to note, however, that in many of these patients who object to direct cold water treatment, menthol, which effects a change in the skin sensibility by substituting a sensation of coolness, is agreeably borne. Heat of high temperature, e. g., dry hot air, often aggravates the condition in the earlier and is of great value in the later and chronic stages.

The muscular sense, tested in cases of neuralgia affecting the upper extremities, does not show impairment. In some instances it appears to be more acute. In other patients, chiefly hysteric, the tests give varying results. This is probably due to the state of the centers of consciousness rather than to actual transmission defects in the peripheral nerves. It may be remarked in general that the extent to which all the sensory symptoms should be ascribed to a central or to a peripheral origin is very hard to determine.

Motor disturbances do not occur in the non-objective neuralgias but may be transiently present in the neuritic forms. Theymay arise directly when the peripheral irritation exciting the sensory nerves also affects the neighboring motor filaments, or they may arise indirectly, i. e., reflexly, through the intermediation of the central nervous system, the sensory filaments alone being involved. The signs of motor irritation may vary from slight muscular twitches to tremors and irregular mild grade spasmodic movements noticeable especially in trigeminal neuralgia. A certain degree of paresis, of ataxia, and also of atrophy may be present, but all of these conditions are due to disuse of the muscle groups on account of the fear of exciting pain. The tendon reflexes are normal except during the acute stage or a paroxysm when they may appear increased.

Vasomotor disturbances are seen with relatively greater frequency in neuralgia of the trigeminus. The face, at first pale, soon becomes red and congested as the paroxysm increases. In older

cases there may be chronic reddening, but the skin does not feel warm as it does in the acute exacerbations. In severe cases the affected part of the extremities takes on a reddish or bluish red and more or less mottled appearance. There may be also some tumefaction, oedema or passive congestion of the skin and subjacent tissue's.

Secretory disturbances are most commonly seen in trigeminal neuralgia. Sweating and flow of tears occur during the exacerbations. Sometimes, also, the nose runs and the saliva is poured out abundantly on the affected side. In neuralgia of the extremities there may be a slight degree of perspiration during the acute attacks and in the severe cases with prolonged vasomotor disturbance, a clammy moisture persists on the skin. An excess of light colored urine is frequently passed at the end of each paroxsym.

Trophic symptoms are not present in neurasthenic neuralgia. Skin eruptions are not usually observed, although a mild grade erythema, pemphigus or herpes may occur in the neuritic type.

The mental characteristics of individuals subject to neurasthenic neuralgia are worthy of consideration in that they may have a bearing upon the type of neuralgia manifested. From what has been said it will be noted that, as a rule, the non-objective class are more fugitive, transitory, and less severe than the objective or neuritic class. The former may be described as partaking of the quality of indefiniteless, both as to origin, cause and duration. The latter are definite, self-restricted and long in duration. It has been my observation that the individuals who have a relatively weak will or who, by nature or by prolonged invalidism, have a reduced power of concentration are most subject to neuralgia of the non-objective type. On the other hand, those persons who are strong willed and intense in thought, feeling, and action are particularly prone to the objective neuralgias.

For example, many of the brachial or cervico-brachial neuralgias occurring in connection with letter writing, piano playing, tennis, golf, etc., may be due in part to the relatively excessive amount of energy employed in the muscular act. This sudden or steady focusing or flooding of the nervous energy in the arm results in an overstrain of all the tissues involved in the mechanism of the movement. In addition to the strain upon the motor and sensory nerves and their centers, another result may follow, namely, the failure to eliminate the end-products of the metabolic process, consequent upon the muscle functioning, which may prove a considerable factor in the development of a state of persistent localized disorder. Buzzard's theory of a deposit of sodium urate in the perineural lymph spaces is suggestive, even if it is not demonstrable.

## The treatment.

The treatment consists, first, in attending to the underlying neurasthenic condition which may be considered the soil in which the neuralgia develops and thrives. This can best be done by regulation of the patient's life, giving full instructions as to the rest, diet, exercise, and out-door living. Added to these physical procedures the individual should be taught how to correct or modify the mental habits and characteristics which are often a great factor in the production of the neurasthenic state.

The second point in the treatment relates to the management of the local condition. In the acute or earlier stages it will be found that nearly all local treatment avails little. Rest, therefore, is the first and most essential requisite. This should be absolute or partial, according to the severity of the attack. Even in a mild case, when it would appear sufficient to immobolize, as far as possible, the neuralgic area, it is still a good practice to insist, for a varying length of time, upon complete rest of the entire organism.

When the time arrives for active local treatment to be undertaken the first step should be the employment of all such means as will improve the circulatory, eliminative, nutritional processes of the affected part. Massage, passive manipulations, electricity in its various forms, the application of heat and cold by hydrother-

<sup>1</sup> Harveian Lectures, 1885.

apeutic measures, dry hot air, etc., are of varying utility. It should be borne in mind that the contradictory results so often obtained by these methods may be due to the stage of the disorder. For instance, massage may aggravate the condition in the earlier and be a positive benefit in the later periods.

The second step in the active local treatment consists in allowing the patient to exercise voluntarily. This should be done gently and gradually, at the same time giving instruction that any increase in the local sensation shall be borne bravely and patiently. In habit cases, or those of long standing, there is an especial need of stimulating to the fullest extent the courage and determination of the patient. If a fair test shows that exercise unmistakably increases the neuralgia then it is best to prescribe another period of rest until it is again advisable to attempt voluntary motion

The medical treatment is very unsatisfactory and is of little value except symptomatically to relieve acute pain or to assist in the improvement of the general condition. In regard to the relief of pain it is important to note that morphine has a characteristically bad effect upon the neurasthenic neuralgias. Asperine, antipyrine, phenacetine, gelsemium, and the salicylates are ordinarily the best analgesics. In the lesser paroxysms, a small dose of bromide may be enough to allay the nervous irritability and thus allow relaxation to the pain. It is advisable during the attack to do something for, or with, the patient. Thus the act of bathing the feet in hot water, rubbing the part with menthol dissolved in albolene, using mild liniments applied alone or with heat, flushing the bowel, these and other procedures help to distract the attention and so enable milder drugs to be more effective.

In this connection it is well to bear in mind that in treating the neurasthenic it is not wise to make the symptoms too objective or label them with specific names. Thus, if the patient is told that the pain is due to inflammation of the nerves, the idea, satisfactory by reason of its definiteness, may become fixed in the mind and contribute not a little to the continuance of the symptom.

On this account, even more than because the diagnosis is incorrect, Dana¹ is certainly right in condemning the practice of calling brachial neuralgia by the fashionable name "neuritis."

Summarized, the treatment of the neurasthenic neuralgias consists essentially in rest for the affected part and building up the underlying neurasthenic or below-par condition of the patient.

#### DISCUSSION.

Dr. F. T. Simpson (Hartford): Mr. President and Gentlemen: This is a very difficult disease to treat and a very difficult paper to discuss, but Dr. Hallock, I think, has given us a very interesting description of this type of disease and one that is, I think, frequently unrecognized and not properly regarded by the average practitioner. I think that we are apt to be too hasty in our diagnosis of neuralgia, and just now there is a tendency to use the fashionable name of neuritis.

We find very few people at the present time suffering from neuralgia, but I think we have got to go back and recognize the term and understand, to some extent, its application.

In looking over my cases for the last two years, I found something like forty-five of neuritis and neuralgia which I have seen in private practice and of these the greater number was under the head of neuralgia. I saw in looking them through that there was a definite group of cases that could be classed as neurasthenic neuralgia. The neurasthenic neuralgia, as the doctor said, may have two types; that is, may have an objective and subjective form.

Two cases occurred this spring which illustrates them.

They were cases of neuralgia. Dr. McKnight saw both cases. The first case was of the objective type, in a woman of sixty years or more, which had been existing for some months. When I saw her, she was reduced to a pitiable state of suffering; she could not open her mouth, she could not take solid food, even a draught of air started pain. For months she had been receiving doses of morphine every three or four hours.

At Dr. McKnight's suggestion she was sent to Johns Hopkins Hospital and operated upon by Dr. Cushing who cut the nerve back of the ganglion. She came back with an absolutely wonderful change; perfectly well and she is all right now.

Another woman heard of her wonderful recovery and she too had been having for years a terrific pain in the head, of apparently the same description. Following the example of the other woman, she went down to

<sup>1</sup> Med. Rec., N. Y., 1907, LXXI, 297.

Johns Hopkins Hospital and Dr. Cushing operated upon her and she came back to Hartford and was absolutely no better. She came in to see me and told me her story. She told me that she had suffered just as much after the operation as before; she was suffering all the time. As she sat in my office she was perfectly calm, she had not the slightest expression of trouble or suffering of any sort, and it was purely evident a case of the subjective form of neurasthenic neuralgia. In that case operation does no good. If we can keep this distinction in mind we can save ourselves lots of trouble and save the patient great disappointment.

Another patient whom I have in mind, illustrates this subjective form of neuralgia. She was treated by Dr. Cook for some time and did not get well and came to me. I treated her with electricity for several months, but she did not get cured. She was entirely cured by taking a trip to Florida, where she stayed for several weeks. This same woman, a short time ago, fell on her back and injured the coccyx. Pain started there and she was operated upon by one of our surgeons here. She did not recover from that pain. She stayed in bed but the pain got worse. It so happened, fortunately, her baby got very sick,—so sick in fact that the child was likely to die. She was so concerned over the child that she had to get up,—and did get up,—the pain left her and she has never had it since.

So you see the effect of mind cure in the treatment of these cases and, how if you can secure proper treatment we can sometimes cure them.

Dr. E. J. McKnight (Hartford): I wish to take issue with Dr. Simpson on one point, and that is the condition of that second patient, which was operated upon. As I understand it, she has none of the old pain, but the pain is in a different place and of a different character and her condition is very much better and she has been extremely benefited by the operation. I wish to correct that inference. I saw her within two or three weeks and she told me the pain was in an entirely different place. I consider her condition very much better since the operation.

Dr. Max Mailhouse (New Haven): In my experience, the painful states in neurasthenic individuals do not produce that amount of depression which true neuralgias exert upon those who are subject to them. I have time and again seen these sufferers who complain so bitterly and persistently of their occipital or circumorbital or brachial pains; and they seem none the worse for wear. They seem to endure their sufferings exceedingly well considering their neurotic state. On the other hand, the sufferer from migraine, for example, is completely knocked out by his attack. The pains, too, are often shifting in the neurasthenic, though those who complain of occipital pain, brought on by stress (mental or physical) seem to retain this as their locus minoræ resistentiæ. I have however seen a long-continued rectal pain replaced by a pain in the shoulder and then this pain shift again to spine and then back again to the rectum. These patients do not, as a rule, have the single tender points. Then, too, many in time form the pain habit; they constantly complain; and it

really becomes a habit. With regard to the relative frequency of occurrence of neuritis and neuralgia, I am in entire accord with the author of the paper; not only that, but would go even further and say, that the large majority of the cases of so-called neuritis, are not that at all, but are frequently neuralgias, neurasthenic hyperaesthesias, painful conditions following strain or other trauma, occupation neuroses, etc. It is now of almost daily occurrence for the patient to come to the neurologist with his diagnosis at his tongue's end, neuritis is pronounced so readily, and the trouble something entirely different. The fault lies with the general practitioner, who gives a catchy term to the complaint and the patient is happy. Most of these cases are brachial in distribution. On the other hand, I must dissent from the view that the neurasthenic neuralgias have as their pathology any degree of perineuritis; the shifting of the locality of the seat of pain, the diffuseness and the absence of objective signs all militate, to my mind, against that view. We must content ourselves with the explanation that the central nervous system, in its cellular elements and their groupings as localizing stations, being in a condition below par as to tone i. e., nutrition and metabolism, is hence abnormally irritable and as a consequence, reacts too readily and beyond measure to excitants which moreover would not be perceived as such by a normal sensorium; in other words, these noxious influences would be below the threshold of consciousness.

So too these painful areas might be likened to discharge of the sensory cortex just as hallucinations of sound and sight arise within the auditory and visual centers without the functioning of either auditory or optic nerves or end organs.

Valleix's pressure points, while of some importance in true neuralgias, have nothing distinctive about them in neurasthenic conditions. Of greater importance and value from a diagnostic standpoint is the spinal hyperaesthesia evidenced by increase in the pulse rate produced by pressure on the tender spine in neurasthenics.

Another phenomenon, akin to these, is the marked general disturbance produced in some neurasthenics by tapping the patella tendon; ordinarily, in these patients, this reflex is very active; in some, however, the response to the tap is so sudden and intense as to produce a marked general perturbation.

With reference to treatment, while I agree with all that has been said concerning the importance of general treatment, it is of the greatest value to relieve symptoms and this is wherein most difficulty is found; and I had hoped to hear of a number of safe, non-depressing means of giving relief and making these patients comfortable. And here I would like to state that notwithstanding the abuse to which electricity has been subjected in the hands of many practitioners, it still remains in its various forms and when properly selected and employed a valuable adjuvant in these painful conditions. Just one word of warning in the use

of menthol. It is a valuable remedy; but in the aged it should be rarely prescribed, as the cooling sensation which it produces is very disagreeable to these patients. When the pains and paraesthesiae are accompanied by burning sensations it is often beneficial.

- Dr. A. R. Diefendorf (Middletown): Mr. President: There is a question in my mind whether these cases reported by Dr. Hallock are really all cases of neurasthenic neuralgia, or whether some of them belong to the second type of cases as reported by Dr. Simpson in his discussion. At any rate, I am not in favor of the view that the cases of neurasthenic neuralgia depend upon demonstrable pathological lesions either in the white or gray matter. In accord with this view, it seems to me that the most important element in treatment is the eradication of the fixed ideas which control the patient. There are various methods of dissipating these fixed ideas and probably the most successful is through the means of direct suggestion. Certainly these patients do not improve under the influence of rest and relaxation alone.
- Dr. A. S. Brackett (Bristol): As I understand it, it is simply a condition. Now in considering neuralgia what we call a neurasthenic neuralgia we have got to qualify it still further. Is it neurasthenia from overwork or what? Now in accounting for the presence of pain in neuralgia we have either the central system to blame or the peripheral nerves.
- Dr. Hallock made one point which I think is very true and that is about perineuritis. These cases of perineuritis are very common and very satisfactory to treat because by reducing the perineuritis and at the same time building up the patient in every manner possible, in very many cases, you can cure them. Then I was very much interested in Dr. Diefendorf's remarks, as I have noticed down here that many neurasthenics were really myo-neurasthenics. In other words, their nervous system is run down, their digestions are poor, they are constipated and, further, it takes place in good homes before it does in poor ones, and especially among our women, and then there are the further conditions we do not understand. One great trouble with the American women is that they do not do enough manual work.
- Dr. C. N. Haskell (Bridgeport): Dr. Hallock has referred to neurasthenics. We are being taught, recently, that when we examine our patients carefully for the presence of organic disease or the various forms of auto-intoxication, neurasthenia is found less frequently. This is true to such an extent that I am reluctant about regarding neurasthenia as a definite quantity. I find in my private practice so few neurasthenics that I am glad to turn over to Christian Scientists so called, or more properly speaking, religious paranoiacs. I think that in due course of time the

term neurasthenia will become obsolete. I believe further that the "pain of neurasthenia" can be traced to toxæmia or organic disease in the great majority of cases.

Incipient tuberculosis, the rheumatic diathesis and beginning general paresis should not be overlooked when neurasthenia is suspected.

Dr. F. K. Hallock (Cromwell): In view of the length of the discussion and the number of papers that are to follow, it hardly seems worth while to prolong the debate.

You have readily seen what difficult and complex subjects both neurasthenia and neuralgia are. I think there is a good deal of truth in most of the criticism that has been made. Much of the variance of opinion will disappear if we remember that, to a very profound extent, the integrity of the nervous system depends upon the integrity of the lower grade tissues of the body.

## Chronic Gonorrhoea

R. A. McDonnell, M.D., New Haven.

It is just beginning to be generally recognized that chronic gonorrhœa, in its far-reaching consequences, may be fully as serious as syphilis itself.

Not only is it much more widespread, and more easily acquired, but it is fully as difficult, in many cases, to cure.

A very large proportion of the surgical abdominal diseases of women may be traced to this cause, and in men, surgical diseases of the prostate and testicle, fatal kidney affections, blindness, and joint deformities are its direct outcome.

While it is pretty generally admitted nowadays that syphilis is a curable disease, there are not a few careful and competent men who believe that chronic gonorrhæa, in many cases, is absolutely incurable. Certain it is that patients frequently carry the disease about with them for years, either ignorantly or carelessly or in despair of being cured.

The fact is, we medical men have a great deal to answer for, because it is through our indifference or criminal negligence that such a tremendously important disease is often trifled with.

We have no more right to minimize the importance of shreds in the urine than we have to say that albumin is of no consequence.

Absolutely reliable statistics about the duration of this disease are exceedingly difficult to obtain. A perusal of the quasi-scientific reports on the results secured by the use of the new silver salts, for instance, would lead one to suppose that in at least ninety per cent, of the cases, treated from the beginning, a cure can be effected in three or four weeks at the outside. This is so far from the truth that it would be amusing, if it were not so serious.

Realizing that his results could not be compared with those said to be commonly obtained, the writer has spoken with several of the most prominent genito-urinary specialists in this country, and has learned, very much to his relief, that they hold the same pessimistic views about speedy cures. The more experience one has in the treatment of chronic gonorrhæa, the less sanguine one is apt to get.

With a view to having something definite to say, the writer recently undertook the task of looking over and tabulating his records of a thousand cases of gonorrhæa, treated in private practice. These cases were not selected with the idea of proving any theory, but were taken at random. No such collection of evidence is of any value unless it is absolutely truthful, and the truth is often humiliating.

For instance, the writer is not proud of the number of cases of acute beginning gonorrhoea which, under his care, became chronic, suffered complication after complication, and finally eloped uncured.

But here are the figures:

There were 623 acute cases which applied for treatment during the first month of the disease. Of these 199, or 32%, eloped uncured; 68% I believe to have been cured.

Of 424 cured cases 166, or 39%, were cured inside of 1 month,
92, or 21%, took from 2 to 3 months,
51, or 12%, took from 2 to 3 months,
44, or 10%, took from 3 to 4 months,
20, or 4.7%, took from 4 to 5 months,
18, or 4.2%, took from 5 to 6 months,

33, or 7.8%, took from 6 to 14 months.

There were 377 chronic cases which applied for treatment, of which 148, or 39%, eloped uncured; 229, or 61%, were cured, I believe.

Of the chronic cases,

- 38 had been going from 1 to 2 months when they came,
- 43 had been going from 2 to 3 months,
- 40 had been going from 3 to 4 months,
- 37 had been going from 4 to 5 months,
- 26 had been going from 5 to 6 months,
- 34 had heen going from 6 to 7 months,
- 6 had been going from 7 to 8 months,
- 22 had been going from 8 to 9 months,
- 8 had been going from 9 to 10 months,
- 5 had been going from 10 to 11 months,
- 1 had been going from 11 to 12 months,
- 120 (or 32%) had been going over a year,
  - 11% had been going from 1 to 2 years,
  - 12% had been going from 2 to 5 years,
    - 7% had been going from 5 to 10 years,
    - 2 cases had been going from 10 to 15 years,
    - I case had been going from 15 to 20 years,
    - 3 cases had been going from 20 to 25 years.

The parts affected will be found in the following figures:

- 84% had posterior urethritis,
- 35% had prostatitis or seminal vesiculitis, or both,
- 21% had epididymitis,
- 28% had strictures,
  - 41/2% had gonorrheal rheumatism,
  - 3.2% had peri-urethral abscess,
  - 4 cases had prostatic abscess,
  - 7 cases had inguinal abscess,
  - 8 cases had appendicitis,
  - 2 cases had gonorrheal conjunctivitis.

These figures refer to the chronic cases which were cured:

- 19% of the chronic cases were cured in 1 month,
- 20% took from 1 to 2 months,
- 12% took from 2 to 3 months,

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9% took from 3 to 4 months, 7% took from 4 to 5 months, 22% took from 6 to 12 months, 9% took upwards of 1 year.
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These figures suggest a few remarks. In the first place, gonorrhoa will, in many cases, last as long as you let it. It seldom cures itself. From the very nature of the complications found in the chronic cases, this must be so. Furthermore, many of these complications occur in places that are not accessible for the patient. Therefore, no treatment used by him is going to cure them, no matter what he uses. The prescription handed the patient may be a model of the therapeutic art, but unless the drugs reach the gonococci, the prescription is of no avail. The writer is of the opinion that with just two drugs, or possibly three — Potassium Permanganate, Silver Nitrate, and Zinc Sulphate — all cases could be cured, if these drugs were rightly used. Why, then, multiply prescriptions?

The first thing to do, when a patient comes with chronic gonorrhoea, is to get his history, which is usually a recital of disappointments he has suffered, but which frequently gives a clue to the nature of the case. For instance, he says he has morning drop, only. This generally means posterior urethritis; for if the trouble were located below the cut off muscle, the discharge would trickle down during the day and show at the meatus. The morning drop means that the cut off muscle has relaxed some during sleep, and pus, forming behind it, has worked down through it during its relaxation. Or the patient complains of a syrupy discharge from the penis during defecation. That usually means a congested prostate, pressed upon by the feces, or by the muscular strain which accompanies a constipated defecation.

Getting up at night to urinate means posterior urethritis and cystitis, or prostatic enlargement. Difficulty in starting the stream of urine suggests irritation about the cut off muscle, resulting in violent contraction.

But the real diagnosis of the condition must be made by an examination, rather than by the history given by the patient. The external genitals are first inspected, and the presence of enlarged inguinal glands, enlargement of the epididymis, and character and amount of discharge from the meatus noted.

Then the patient is instructed to pass urine in two portions, of which the first will represent bladder urine and the accumulations it washes out on the way down; the second will represent bladder urine alone, as it passes over a clean urethra and does not gather anything on the way down.

The first portion may be cloudy or clear, but usually contains flakes, hooks or shreds, and perhaps all three.

The second portion contains, if the bladder or deep urethra is the seat of inflammation, either flakes or shreds.

Now in a general way it may be said that where the inflammation is acute or subacute and pus is present, all the débris will tend to settle promptly to the bottom of the glass. Where the inflammation is not of a suppurative type but results in peeling or increased mucus production, the débris tends to rise to the top.

Shreds represent either pus or mucus; flakes represent desquamation; hooks represent plugs of hardened mucus which have been washed out from the urethral glands; glistening, pearly globules represent prostatic products. After the presence or absence of posterior urethritis has been established by an inspection of the urine, the calibre of the urethra should be measured, either by the olive-shaped bougie, or by a sound.

If a 26F sound can be passed to the bladder without resistance other than that interposed by the cut off muscle, no stricture is present. To the mind of the writer, strictures of larger calibre than this are a figment of the imagination. Incidentally it may be remarked that the passage of a sound is not painful if it is done rightly. Conversely, if it hurts the patient to have a sound passed, the operator is to blame, either for his technique or for his judgment. Sounds have a sinister reputation with patients,

because strong doctors armed with a piece of steel have done memorable things to their victims. But it is address which is needed in passing this instrument, and not force. The writer was told by one patient that after he had had a sound passed by a physician on one occasion, he found blood in his shoes when he reached home from the hemorrhage caused by the sound. It reminds one of a burglar trying to force a safe with a jimmy.

The presence or absence of strictures having been noted, an examination of the prostate should be made. The size, the presence of hard lumps or sensitive spots and the general consistency—whether mushy and soft or elastic and firm—should be carefully considered. The seminal vesicles cannot be reached by every finger, for they are rather inaccessible, but by having the patient lean well forward with his head down toward his knees, they may usually be felt. In some cases, even slight pressure upon the prostate or vesicles will cause a glairy discharge to appear at the meatus, and the patient will at once recognize this as the thing he has been seeing.

After such an examination, the physician is in possession of the facts. Nothing has been said about the use of the microscope or of the urethroscope. The former should be used once to establish the diagnosis by the demonstration of the gonococci. It generally need not be used again, because the patient is not wholly well while there is any discharge of any kind left to examine. It is true that the microscopical character of the discharge may, in some cases, throw light on the parts affected, but this information may be secured by the means described above. The urethroscope is a less useful instrument than might be imagined, because it requires long practice to interpret correctly what is seen, and because it cannot be used frequently without setting up a harmful irritation of its own. It is not to be denied, however, that in a certain proportion of cases — not large — its aid is essential. As a means of applying treatment, it is more theatrical than efficient.

Now for the treatment. Alcohol and venery should be absolutely forbidden. Smoking and diet have very little, if any, effect.

Posterior urethritis exists in about 84% of all cases. To reach the posterior urethra it is necessary to pass an instrument beyond the muscle. The writer uses a small, soft rubber catheter lubricated with lubrichondrin, and attached to a half-ounce syringe with a pointed nozzle. Through this, every five days, about a drachm of a 1 to 2,000 silver nitrate solution is injected beyond the muscle and left there. After a few such instillations heavy shreds in the second portion of urine are usually replaced by light ones and finally disappear. Sometimes a stronger solution than 1 to 2,000 is used, but this generally suffices.

Prostatitis is present in about 35% of the cases. Firm massage of the prostate about twice a week, aided by hot rectal injections daily, taken by the patient unaided, will usually, after about two months, cause a large prostate to become normal in size and consistency. The massage should be especially thorough over sensitive spots. Hot water, not warm, should be used for the rectal douche.

After the massage, it is generally advisable to instill some of the 1 to 2,000 silver solution.

Epididymitis is found in 21% of cases. This usually requires rest in bed during the acute period, and the writer knows of nothing which can compare with antiphlogistine for controlling the pain and swelling. Ice, heat, guaiacol, ichthyol have all been tried thoroughly and abandoned. After the acute period is passed, gentle massage and strong ichthyol ointments will help in the absorption of inflammatory products. During the acute stage all urethral treatment must be stopped.

Strictures existed in about 28% of the cases. Several of these were impermeable except to filiform bougies, and to these only after patient effort. And yet gradual dilatation was satisfactorily used in all. Urethrotomy is not as much practiced as formerly. Only one sound is passed at each treatment, but that is allowed to stay in the urethra five minutes. In four or five days a size larger is passed with equal ease. When 26F is reached, no farther advance is made. It is a good idea to use an instillation of silver after each sound.

The other complications are less frequently met. It is a noteworthy fact that 2% of all cases had appendicitis; and gonorrhoea may or may not be concerned in the etiology of this disease.

One other fact has especially struck me while looking over my records. In a good many cases, the patient developed syphilis after his gonorrhoea was well under way. In these cases, the gonorrhoea was apt to be neglected for the supposedly more important syphilis. Yet in most of these cases the gonorrhoea got well rather soon.

Possibly mercury and potassium iodide would be valuable aids in the treatment of gonorrhoea.

The use of the balsams and oils internally can accomplish but little. They make the urine antiseptic, it is true, but they cannot reach buried gonococci, cause absorption of granular deposits, dilate strictures, reduce enlarged prostates, or cure swollen testicles. On the other hand, they sometimes keep the urethra congested and produce a mucous discharge. In the treatment of chronic gonorrhoea they rarely accomplish any good.

## DISCUSSION.

Dr. F. H. Coops (Bridgeport): Mr. President and Members of the Society: I must congratulate Dr. McDonnell on the most excellent paper which he has just read. He has given you such a complete and exhaustive summary of the subject that there is little left for me to say except to emphasize some of the remarks he has made.

The more one comes in contact with these venereal diseases, the more thoroughly convinced one is of the old statement: "Once a gonorrhoea, always a gonorrhoea." Although I am not prepared to go as far as that, yet I believe with Dr. McDonnell that the disease is an extremely chronic one and one in which it is very difficult to effect a permanent cure, and that the results are often more disastrous than those of syphilis.

Dr. McDonnell's carefully compiled statistics of one thousand cases treated in private practice are extremely interesting. His finding of 84 per cent. of inflammation of the posterior urethra, although a little larger percentage than I have been led to believe, is certainly near the mark. Taking 75 per cent. as a fair percentage of cases of posterior inflammation, 50 per cent. at least of these cases become chronic; and as chronic gonorrhoea is, according to no less an authority than Keyes of

New York, chronic posterior urethritis, and as, according to Dr. Mc-Donnell, chronic posterior urethritis will not cure itself, it seems to me that there is a pretty wide field for the genito-urinary specialist.

There is, however, quite a large percentage of chronic cases in which the anterior urethra alone is involved, and these cases often give us considerable trouble. I believe in these cases the Janet method of irrigating with permanganate of potash plays an important role.

In the more chronic cases of granular deposits and erosions, I think we have to supplement the treatment by the use of sounds and nitrate of silver irrigations. In posterior cases I agree with Dr. McDonnell in his treatment, although I am still very fond of using the Ultzmann instillator. This instrument can be easily sterilized, can be introduced very readily, produces no more damage to the urethra than the soft rubber catheter and it in every way facilitates the work.

His finding of thirty odd per cent. of prostate cases strikes me as being rather a small percentage. Some authorities state that all cases of posterior urethritis have inflammation of the prostate. I imagine that Dr. McDonnell only took the cases where he found prostatic abscesses, for certainly my experience has been to find the prostate involved in a much larger percentage.

In regard to the treatment of epididymitis with the use of antiphlogistine, I have never had experience in the use of this, but as Dr. McDonnell has received such good results from its use, it is worthy of being tried. I still like, in the acute cases, painting the scrotum with a 50 per cent. solution of guaiacol. In the acute inflammatory processes I like the flaxseed and tobacco poultices and when the acute inflammation has gone down I strap the testicle, according to the Chetwood method, by rubber bandages held in place by adhesive plaster. I think you meet with very good results in this way.

With regard to the discarding of all the so-called new silver salts, I think they play a very important role, especially in subacute cases. I think that they penetrate beneath the epithelium and act upon the gonococcus much more effectually than the nitrate of silver. I agree with Dr. McDonnell that in cases of chronic gonorrhoea it is useless for patients to use balsams. I think they are capable of doing a great deal of harm. I think, however, where the bladder is filled with pus, especially in prostatic abscesses or even in cystitis where the urine is undergoing alkaline degeneration, that the so-called urinary antiseptics play an important role, and of these urotropin stands at the head and I should be very loath to do without it.

Dr. Charles S. Stern (Hartford): Dr. McDonnell has presented a very large subject concisely, though at the expense of important omissions. That the consequences of chronic gonorrhoea are as serious as syphilis because of neglected treatment, should be more widely recognized both

by physicians and laity. More than any other disease does this with its sequels cause domestic unhappiness; and we are all familiar with the sufferings and frequent deaths among older men from prostatic disease, directly attributable to former gonorrhoea.

With Dr. McDonnell, I believe we should guard ourselves from being imposed upon by the quasi-scientific reports on new remedies; which often contain endorsements of prominent men, long out of date, or totally misrepresented.

The doctor's report of 68% cured vs. 32% eloped I consider a most satisfactory showing; and he is either to ambitious, or too modest, in apologizing for such results. It is a stubborn condition to treat, and a large number, 32% to 39% as we see, become discouraged and change doctors, probably more often than in any other disease. I believe most of these cases, I should not hesitate to say 90%, are eventually curable. The remainder can be much relieved of severe and annoying symptoms, and lead a comfortable life. But these chronic incurable cases must be recognized, and the patients told that their trouble requires continued attention in order to prevent its further progress and to keep in a comfortable state. For by raising false hopes which cannot be realized these patients soon become disappointed and elope.

We see similar classes of patients with chronic catarrhal affections of the nose or throat, stomach or intestines, who need more or less attention throughout the years.

I wish to call attention to two points in estimating the findings in the 2-glass test as usually made:

- r° Before the micturition, wash the glans and prepuce free of smegma, or else your flakes and granular matter may be greatly overestimated.
- 2°. When the second glass shows clear, don't be overconfident that the posterior urethra is not involved. Accumulations in the prostatic portion may be completely washed out into the first glass.

That the presence of a morning drop is always diagnostic of posterior urethritis, cannot be stated without qualification. This "goutte militaire" is only the accumulation of inflammatory products in the canal during the long night periods, which during the day are constantly washed out by the frequent urination, so that no large excess appears at the meatus. But the location of the morbid process which produces the secretion may he in the anterior urethra only, and indeed is often seated at the bulbous portion.

And this brings me to another point, namely: that in these chronic gonorrhoeas especially of long standing, we rarely have a single abnormality to deal with, but the rule is that both the anterior and posterior portions are involved, and the adnexa frequently—and all must be treated.

I am rather surprised at the high percentage (21%) of epididymites reported. It is quite possible for this complication to develop from too vigorous handling of the prostate when infectious matter might be forced into the vas deferens. Massage and instillations are our most serviceable methods of treatment as Dr. McDonnell has shown in his results, but most patients must gradually become accustomed to them. Dr. McDonnell alludes to the urethroscope, and says - "As a means of applying treatment, it is more theatrical than efficient." The challenge contained in this statement I shall take up, and trust shall prove abundantly to this state society its erroneousness. For this purpose I shall present at an early opportunity a paper on "The Urethroscope in Treatment" as a corollary to my former paper on "Urethroscope in Diagnosis." At present I can only say that Dr. McDonnell cannot have used this method to any large extent, or some fault of technic must have interfered with his results. I have not yet tabulated my cases, but can state that many have received prompt relief and permanent benefit, after continued disappointment followed other simpler modes of treatment.

I must also take exception to the statement that "if a 26F sound can be passed, no stricture is present." As I have shown on a former occasion the steel sound is not an instrument of diagnosis. You may pass a large smooth sound (26 or 28F) easily and rapidly, and yet one or several points of narrowing which exist will be entirely overlooked. While on the other hand you may work for hours with a small steel sound trying to get through a canal, which is really innocent of any organic stricture.

I wish to personally thank Dr. McDonnell for many suggestions contained in his paper and I am sure we all appreciate and will benefit by the valuable data presented as the result of no little labor in tabulating his one thousand (1,000) cases.

Dr. J. F. Calef (Middletown): I should like to make one remark in reference to this subject.

A good many years ago, before antiphlogistine, I for a long time used on glandular enlargements of the throat and on inflammatory enlargement of the joints, a similar preparation made simply of finely powdered clay with glycerine. I do not know the exact analysis of antiphlogistine, but I suppose it is about the same thing as the old clay and glycerine poultice that was used by me about twenty to twenty-five years ago.

I do not believe any clays are sterile. I do not believe antiphlogistine is a sterile product. I do not believe that the preparation I used was werile. I believe them both to be dangerous where there is any scratch or abrasion of the skin. Bad results may come from the use of these remedies on the abraded skin.

Dr. S. M. Garlick (Bridgeport): Mr. President, not to waste the time of the Society, I would like to ask Dr. McDonnell if he finds any change antiphlogistine beyond the pharmaceutical preparation?

Dr. Guthrie (Scranton): Speaking of the use of clay, I would like to say just one word in line of the local application of clay. The remarks of the last speaker concerning it not being sterile recalls to mind that Dr. Hudson, in Philadelphia, twenty-five or thirty years ago, was using clay in dressing wounds and his method was to take clay as clean and clear as he could get it and bake it. We did not know of sterilization then and this shows you how men in the profession, and even the laity, produced sterilization long in advance of the scientists. Dr. Hudson's method was laughed at. He was called the mud doctor, but we know that his results were good in the application of roasted clay mixed with boiling water, which made a sterile dressing.

This, I presume, was practically the same as the so-called antiphlogistine remedies that are gotten up to enrich the exploiter and which are positively no good to the patient.

Dr. R. A. McDonnell (New Haven): In a very few words I would like to express my appreciation of the way my paper has been received and discussed.

About the use of the urethroscope, —I have no doubt it is useful in some cases, but Dr. Hayden, who is at the head of the Physicians and Surgeons Clinic on Genito-Urinary Diseases, told me he had abandoned it almost entirely. He uses it once in a while and has seen a certain number of cases in which it was a useful means of diagnosis and treatment. It is an undisputed truth, I will admit, that variations of calibre in the urethra which cannot be determined in the passage of a twenty-six sound may exist, but if they do, — what harm? If the canal is large and there are slight variations in calibre why those are simply made by nature, the same as if a man had a lump on his nose. If the discharge is all cured and the canal is free from obstruction what is the difference if there is a variation in the calibre?

I have no retainer from the antiphlogistine people, and I simply use antiphlogistine without any consideration of the other things.

I presume that the clay that the Pennsylvania doctor used twenty-five years ago was just as good; it probably acted the same as antiphlogistine. I do not want to take up any more time. I thank you.

## Some Complications of Acute Otitis Media.

E. TERRY SMITH, M.D., Hartford.

The casual remark made by a general man of recognized ability,—" Nothing the matter with the child but an abscess in the ear," is my apology for this paper.

Undoubtedly since the frequency of influenza, ear affections have increased in severity and multiplied in numbers. There are few men, who have graduated within the past twenty-five years, who would tell a patient suffering from a fistula, leading, for example, to a sequestrum of the femur, that he will outgrow the same, or who would be satisfied with the application of poultices to such an ailment, or indefinitely syringing the channel with an antiseptic solution. Yet, until recently, a large number of the profession, who would rationally ascertain the nature and extent of such an ailment, and would successfully treat it, seemed utterly to ignore the importance of aural ailments with similar pathological conditions.

Too much faith is still often exhibited in the belief that nature is all sufficient, and that under trivial treatment the patient will outgrow his ailment.

The time to treat ear diseases is in their incipiency, and unless treated at that time the best results cannot be obtained. It is well to remember that the pathology of ear diseases is much the same as that of diseases elsewhere, and that the hearing apparatus, when diseased, contains often the most violent septic foci, and that it is surrounded by parts so vital that extension of infective processes to them from the ear centers is more dangerous than the spread of inflammation from the appendix to the peritoneum, and therefore, the necessity for proper diagnosis and competent treatment is as urgent in otology as in abdominal surgery.

Let us very superficially consider the anatomy of the mastoid portion of the temporal bone, so that we may have the relation of the parts fresh in our minds.

The mastoid, as you all know, is that highly important part of the middle ear extending behind and below the cavity of the tympanum and corresponds to the protuberance behind the auricle; the upper surface of the mastoid portion unites with the postexternal edge of the roof of the tympanum. The inner surface is quite concave and over it runs a furrow which is the sigmoid The mastoid foramina are found near that point where the upper and under edges of the mastoid portion meet. The mastoid cells are found within the mastoid. They consist of bony air chambers of variable size, communicating with one another by means of foramina within their thin walls. They communicate with the tympanic cavity by means of the mastoid antrum and aditus, and are lined by a continuation of the same mucus membrane lining, the eustachian tube and tympanic cavity. The number and development of these cells vary, not only in different individuals, but in the same individual on the two sides.

In the mastoid portion of the child it is found that the septum dividing the mastoid cavity from the sigmoid sinus is very thick, and hence inflammation is not so apt to pass from the former to the latter as in adults, in whom the septum is always thin; hence, in very young children meningitis very rarely occurs from inflammation of the mastoid cavity, from which inflammation tends to pass outward rather than inward. This is not entirely on account of the dividing septum being so thick, but the outer wall of the mastoid is imperfect in childhood; in adults the reverse is the case,—everything seems to favor the passage of the disease of the mastoid cells inward toward the brain.

The lower part of the mastoid portion is known as the mastoid process; to it the (sterno-cleido-mastoid) muscle is attached. This is developed more in the strong and muscular, while it is quite small in the weak and in children.

The so-called mastoid antrum is really part of the tympanic cavity, and is of triangular shape. Its position is somewhat above, in front of, and farther inward than the rest of the mastoid cells.

Its walls, with the exception of part of the outer wall, are formed by the petrous part of the temporal bone, and communicate, by numerous perforations, with the mastoid cells, by which it is surrounded on all sides, excepting in front and on the inner side.

Anteriorly it has a wide opening into the tympanic cavity, the aditus, — and on its inner side is bounded by that part of the petrous bone-covering in the horizontal, semi-circular canal.

The mastoid cells extend as far backward as the mastoid foramina, where they are in close contact with the outer side of the groove for the sigmoid sinus, and they are found as far forward as the exterior auditory canal.

The lowest limit of the mastoid cells is the tip of the mastoid.

Let us now consider acute inflammation of the mastoid cells.

The purulent inflammatory affections of the middle ear nearly always involve the mastoid cells to a greater or less extent, by continuity of mucus membrane.

Pus generally makes it way from the tympanic cavity into the antrum, when the patient is lying on his back, but only in a certain proportion is this attended by inflammation in the mastoid cells, or in their bony walls.

What is meant by acute inflammation in the mastoid cells is the inflammation that comes on usually in the course of the acute stage of purulent disease of the middle ear, and is attended, in most cases, by rapid formation of pus in the cells, and is frequently limited to the vertical cells behind, below and more superficial than the antrum, between which and the mastoid cells there may be no connection.

The muco-periosteal lining of the cells is at first red and swollen, and the osseous tissues share in the inflammatory process.

After a time the cells become filled with purulent or mucopurulent secretion; granulation tissue also forms in their interior, with cario-necrosis of the osseous tissue.

Let us consider the cause of this condition.

During the discharging stage of acute purulent inflammation of the middle ear, this disease may be excited by obstruction to the exit of pus from the mastoid cells to the tympanum, by irritating application to the tympanum and by forcible or injudicious syringing.

In some cases there seems to be no direct continuity between the inflammation in the tympanum and that in the cells; probably the fresh sceptic center is established behind by microbic migration from the tympanic cavity.

Acute of this in epidemic influenza seems often to be followed by this complication. The subjective symptoms of this condition in some cases are very severe; often there is violent pain in the mastoid region, shooting down the neck and over the whole head, with great tenderness on pressure or percussion.

There is frequently a most painful sense of fullness in the mastoid process, the pain in some cases is very intense, affecting not only the mastoid area, but as far back as the occipital bone.

On the other hand, often the pain is not severe and may only be experienced on pressure; and we are then apt to overlook the true nature of the disease.

There may or may not be temperature; occasionally giddiness is a marked feature.

Among the objective symptoms the dicharge should be first examined; it is generally profuse and after syringing the ear, the canal quickly fills again.

The walls of the osseous canal are often much swollen, especially the superior and posterior.

In many cases the soft parts over the mastoid are unaltered, both to the eye and to the touch, the impression being that of bulging of the bone. Sometimes the inflammatory condition extends through the cortex to the periosteum and superficial structures, presenting the appearance of a mastoid periostitis.

The glands below the ear may be enlarged, while in the slighter varieties, the inflammatory process may subside and pass away without suppuration.

Much more frequently a collection of pus forms, which, if not operated upon, may eventually make its way either through the outer shell of bone behind the auricle, or much less frequently through the osseous wall of the canal, leaving a carious opening in either of these places.

It rarely finds its way into the tympanic cavity, owing to the closure by swelling or otherwise of the aperture between the tympanum and the antrum.

The collection of pus may occupy a large part of the interior of the mastoid, or it may be more limited.

When the superficial parts are inflamed, it is difficult to diagnose mastoiditis from mastoid periostitis, until an incision has been made.

When no change is perceptible in the tissues outside the bone, the symptoms being only of a subjective character, we can exclude mastoid periositis.

If in a case with profuse discharge from the ear, unaffected by ordinary treatment, there is swelling of the upper and back part of the osseous meatus, and pain on pressure over the middle or toward the apex of the mastoid, along with a more or less marked bulging of the bone, but without any or with but a slight change in the soft tissues, we are safe in diagnosing a purulent collection in the mastoid cells.

The following cases of simple mastoiditis are interesting rather than typical, as they are more severe than they usually are when they resolve without operation.

Case I — M. F., a girl eight years old, — was seen in consultation wih Dr. O. C. Smith, on December 2, 1905.

The child had been ill with indefinite symptoms for some days. On November 27th her temperature had been 100.8; pulse 90; respiration 24; and at that time her blood was examined by Dr. O. R. Witter with the following result:

Leucocytes . . . 8,700.

Polynuclears . . . . . . . . . . . . 66%

Negative for malaria.

Her temperature on the three following days did not go above 100, and she was very comfortable. On the next day she complained of some pain in her right ear, and her temperature reached 102.4; pulse 100; respiration 26.

The next morning her temperature had dropped to 100.4; pulse 90; respiration 24; but by afternoon her temperature had reached 103.8; pulse 115; respiration 30; and when I saw her with Dr. O. C. Smith at about six-thirty her temperature was 104.8; pulse 120; respiration 30.

The drum was just beginning to bulge, and under chloroform it was freely incised. The next morning her temperature had gone down to 101; pulse 100; respiration 22; but the mastoid was slightly tender.

In the afternoon her temperature again rose to 104.6; pulse 155; respiration 40; and at this time the blood was again examined. The leucocytes had gone up to 27,000 and the polynuclears up to 80%. The ear was discharging freely, and the mastoid was extremely tender. The usual treatment for mastoiditis was followed out, — irrigation of the canal with 1/10,000 bichloride every three hours, and cold locally.

The next morning her temperature had gone down to 102, but by night it was 103.8; pulse 120; respiration 26; the mastoid was not nearly so tender, and her general condition better.

From that time on the temperature continued to subside, and at the end of five days her temperature was normal and her ear was very much better. The above case is interesting on account of the similarity in symptoms to a sinus thrombosis, in that it had marked variations in temperature and increased polynuclears.

Case II — R. T., a boy eleven years of age,— was seen at the request of Dr. William Porter, Jr., on January 20, 1906.

He had been sick with an attack of influenza for three days. He had been having pain in his right ear for about three hours when I first saw him. His temperature was 103.8; pulse 105; respiration 24. The right drum which was slightly bulging, under ether anaesthesia was incised.

After opening the drum his temperature dropped to 100.2; pulse 90; respiration 20; and he felt very much better for a few hours, but at this time the other ear started to pain, and on the morning of the 25th, the left drum which was found bulging, was also incised. At this time both mastoids were exquisitely tender; the treatment outlined in case I was carried out in this case, and although both mastoid processes were extremely tender for a number of days, at the end of five days his temperature had reached noraml, and his ears were in very good condition.

Both cases I and II are used simply to show that many slight infections of the mastoid recover without operation.

Case III — D. G., a girl eight years of age, was seen on May 19, 1906, in consultation with Dr. William Porter, Jr.

She was recovering from a slight attack of measles, when her temperature suddenly went up to 104.2; pulse 110; respiration 30; and she complained of some pain in her right ear. A blood count was made at this time and the leucocytes were 33,600 and the polynuclears 83%.

Upon examination I found the drum bulging; this was incised under ether, and her temperature dropped rapidly to 99, but by four o'clock the next morning her temperature had gone up again to 104.6; pulse 120; respiration 26; just before the rise she had

a slight chill. Her temperature at the end of four hours had dropped to 102.6, but four hours later had gone up again to 105; pulse 140; respiration 30.

A blood count at this time showed the leucocytes to be 28,900, and the polynuclears 85%.

At this time a general consultation was held, at which Drs. Porter and McKnight were present. It was decided that the right mastoid ought, at least, to be opened.

The next morning, assisted by Doctors McKnight and McCook, the right mastoid was opened and was found filled with pus. It was a question whether or not the sinus was involved, but we decided to await symptoms before going further.

Immediately after the operation, the temperature, which had started to rise before operating had reached 103.2; in four hours it had dropped back to 101.8 and the child made an uninterrupted recovery.

Case IV — H. S., a girl six years old, was seen in consultation with Dr. William Porter, Jr., on May 22, 1906.

The child was recovering from a slight attack of measles, when her temperature suddenly jumped to 105.8; pulse 120; respiration 24; and she complained of some pain in her right ear. Upon examination the right drum was found to be bulging, and under chloroform it was incised.

The next day her temperature dropped to 100.4; pulse 90; respiration 22; but the following day she complained of pain in the other ear and her temperature rose to 104.2; pulse 120; respiration 30. The left drum upon examination was found to be bulging, and under chloroform this was also incised.

Her temperature dropped after this but the next afternoon rose again to 104.2; pulse 125; respiration 30.

The left mastoid was very tender and she complained of some pain in it. The blood count was negative.

For the next seven days the child's temperature would vary from five to seven degrees in the twenty-four hours, often jumping from normal to 104 in four to six hours. A general consultation, at which Doctors William Porter, Jr., and O. C. Smith were present, was held, on June 2d, and it was decided that the site of the infection must be discovered. The child was going down rapidly.

On June 4th, assisted by Doctors O. C. Smith and McCook, the left mastoid was opened and found broken down.

The child was much better after the operation, and after the first dressing, which was made three days later, the temperature remained practically normal.

Both cases, III and IV, go to show the severity of the infection that you can get from the mastoid, and also the difficulty sometimes experienced in making a diagnosis.

Besides mastoiditis, a complication of otitis media that we all dislike to encounter, is sinus thrombosis. It is only until recently that this condition has been at all well understood, and many cases of so-called remittent fever occurring in people who have previously had an acute ear disease, have undoubtedly been due to this cause.

Case V — About a year ago I saw a case in a nearby town that had been ill for over four weeks with a remittent fever. His temperature ranged from subnormal to 104 or 105 daily. About five weeks previously he had had an acute inflammation of his left ear. He was emaciated, and his pulse varied from 140 to 160.

It was diagnosed by exclusion that he had thrombosis of the left lateral sinus, and although his parents were told that he would probably die if operated upon, they were certain he would without the operation.

Assisted by Dr. McKnight, his left mastoid was opened and found badly diseased. He did not stand the operation well, and it was decided not to resect the jugular, as he was practically moribund. He died the next afternoon, and at the autopsy, which was made by Dr. McKnight, it was found that the left lateral sinus was filled with fluid pus, and this extended well down into the vein.

Case VI — E. D., a girl seven years old, was seen at the request of Dr. E. J. McKnight on March 26, 1906.

She had been ill for about ten days with indefinite symptoms. On March 24th a blood count by Dr. Witter showed the following: Leucocytes 8,500; polynuclears 73%.

On the 25th a Widal test was made with a negative reaction. When I saw her, she complained of discomfort in not being able to breathe properly. Upon examination this was found to be due to a mass of swollen adenoids in the naso-pharnyx.

On the afternoon of this day, a characteristic measle eruption appeared. On the 27th I was sent for again, as she was having a very slight pain in her right ear. Upon examination the drum was found to be just beginning to bulge, so under chloroform it was incised. Her temperature at this time was 103; pulse 125; respiration 30. The next day her temperature rose to 104.6; pulse 130; respiration 33. In the evening her temperature went down to 101.6. The next morning her temperature again rose and at nine-thirty was 105.2; pulse 125; respiration 30. The temperature then dropped rapidly until at eleven P. M. it had touched 99. At this time the blood was again examined and the leucocytes were found to number 18,500 and the polynuclears 87%.

The next morning her temperature was 104.8; pulse 130; respiration 30; but within twelve hours the temperature had dropped to 97.4.

A blood count was again made and the leucocytes were found to number 16,100 and the polynuclears 86%. Her temperature rose in four hours to 105; pulse 140; respiration 32; the temperature then dropped slowly and the next morning was 96.6.

Dr. McKernan, of New York, was sent for and saw the case in consultation with Doctors C. C. Beach and E. J. McKnight.

A probable sinus thrombosis was diagnosed and operation advised. Under chloroform anæsthesia the mastoid was opened by Dr. McKernan, and was found somewhat diseased. The sinus was exposed over the usual area. The dura covering it was

dark in color. The anterior sinus wall was incised. There was a free hemorrhage from the distal end, and a moderate flow from the bulb region. As there had been a flow from each end of the sinus, it was decided to await further symptoms before resection of the jugular.

For the next forty-eight hours the temperature did not go above 100.6, but on the third day she had a slight chill and the temperature shot up to 104.6; pulse 125; respiration 30.

A blood count at the time showed leucocytes 27,400; polynuclears 88%. The next day the temperature showed rapid variations and a blood count at this time showed leucocytes at 20,000; polynuclears 90%.

During the next two days the temperature continued to fluctuate between 101.8 and 104.6, and on the 7th of April, Dr. Mc-Kernan again saw her in consultation, and at this time under chloroform narcosis, resected her internal jugular. This was found to be thrombosed. After this she did well for forty-eight hours, at the end of which time a general pyæmia developed, and she died, of exhaustion, five days later.

Case 7—A. C., a girl seven years old, was first seen in consultation with Dr. Gillam, of South Manchester, on April 10, 1906. The child had a history of not having been well for several days. The Doctor had seen her two days before, and at that time her temperature was practically normal, and she seemed in fairly good condition; but the father had noticed that for the past forty-eight hours she had had spells of feeling very feverish, but between attacks (with the exception of some ear ache) she seemed fairly well. Upon examination I found both drums bulging, and her temperature 106; pulse 140; respiration 36.

Under ether anæsthesia the drums were incised, and considerable pus was obtained from the right ear. A smaller amount was found in the left. The child's pulse at this time was not

good, and the father was informed that we were anxious about her.

Dr. Bunce of Hartford was called in consultation, and examined the blood. There was a leucocytosis of 20,000.

After incising the drums the temperature, within eight hours, dropped to 99; the pulse was 115; the respiration was 24; but the temperature rose again in six hours to 106; pulse 135; respiration 30.

Dr. McKnight was called in consultation and agreed that the case was probably one of sinus thrombosis. Her temperature again fell to subnormal, only to be followed again by a rise to 106.2; pulse 140; respiration 32.

A blood count at that time showed the following: Leucocytes 24,000; polynuclears 85%.

Dr. Gorham Bacon, of New York, was called in consultation, and agreed that the case was probably one of sinus thrombosis, and that an operation was indicated. Under ether anæsthesia, Dr. Bacon opened the right mastoid and found considerable softening. The sinus was exposed in the usual manner and the dura was found red and lustreless. Upon opening the sinus, there was a free flow of blood from the distal end, but it was not so free from the region of the bulb. Upon passing a curette down toward the bulb there was quite a sharp flow. The sinus was then packed in the usual manner and the dressing applied.

At this time the pulse was exceedingly weak and the child seemed almost in collapse. She, however, rallied somewhat immediately after the operation and for ten hours seemed to be holding her own, but about eighteen hours after the operation, I was hastily summoned and upon my arrival found her in collapse. The heart failed to respond to stimulation, and she died three hours later.

I have reported cases 5, 6, and 7 as I think we should all be alive to the dangerous, heartrending complications that we may at any time meet in these acute inflammations of the middle ear,, and as these cases almost invariably go on to death without interference, we should give them the benefit of what modern surgery has to offer.

Case 8 — A. F. A., a man forty-six years of age, was referred to me by Dr. Rankin of South Glastonbury, on April 15, 1906. He had had a discharging ear for some weeks, and had been treated at one of our Hospitals for two weeks.

He was having excruciating pain over the entire left side of his head, and had had to have morphine in increasing doses. Upon examination I found that there was a rather thick discharge in the right canal and only a pin-hole perforation in the drum. I enlarged this small opening and for several days following he experienced considerable relief. I next saw the case on April 30th, at St. Francis Hospital.

Dr. Rankin said that he had done fairly well up to thirty-six hours previously, when he had noticed that the external rectus of the right eye was paralyzed and that his pupils were unequal and he seemed delirious.

Upon examination I found considerable discharge in right canal, which bacteriologically proved to be an attenuated mixed infection. There was a good sized opening in the drum. The mastoid was not at all tender. The right external rectus muscle was paralyzed and the pupils were unequal, but responded sluggishly to both light and accommodation.

Upon percussion over the right temporo-sphenoidal region there was marked dullness. Temperature was normal; pulse 60; respiration 20. Patient complained of excruciating pain in right temporo-sphenoidal region, and only by large doses of morphine was it possible to keep him in bed.

A blood count by Dr. Steiner showed the following:

Leucocytes .			15,00	Ю	
Polymorphonuclears	3				62.00%
Lymphocytes					31.80%
(500 Leucocytes co	unted	.)			
Large mononuclear	s and	tran	sition	als	2.80%
Eosinophilos					3.40%

Mast cells 5; Myelocytes 4. Red blood corpuscles stain well and show no variations in size or shape. No normoblasts or megaloblasts.

A general consultation was held at which Doctors O. C. Smith, Simpson, McCook, Steiner, Stoll and Starr were present, and it was decided that there must be some pressure on the right temporo-sphenoidal.

On May 3d, assisted by Doctors O. C. Smith and McCook, I opened the right mastoid through a sclerosed cortex and found it filled with pus, its entire structure having been destroyed. I then opened the skull in the temporo-sphenoidal region by means of a trephine, placing the center of the pin in line with the post osseous wall of the external auditory meatus, and three-quarters of an inch above the post root of the zygoma. Upon removing the button of bone, the dura was seen to bulge into the opening.

There was no pulsation of the brain. The meninges were now opened by a crucial incision and at least a teacup full of serous fluid escaped; after the escape of this fluid the brain was found to be pulsating.

The brain was then explored in all directions with a negative result. The wound was then closed and the patient returned to bed. He experienced no further pain in the head and the paralysis gradually cleared up. He left the Hospital at the end of twenty-one days, practically well.

The above case was probably a localized meningitis serosa of otitic origin. In the above cases I have not been trying to prove any pet theory or to advance any new line of treatment, but have simply tried to show the importance of treating all inflammatory diseases of the ear with as much care and judgment as you would, for instance, an inflamed appendix.

## DISCUSSION.

Dr. John E. Sheppard (Brooklyn, N. Y.): Ladies and Gentlemen:— We are under obligations, I am sure, for the series of cases which Dr. Smith has presented to us as you or I may meet them any day. He has mentioned the analogy between mastoiditis and appendicitis. It occurred to me that the results obtained indicate a rather close relation and that a knowledge of the mastoid symptoms and the various results which the doctor brought out in his paper this afternoon should be more generally known.

It seemed to me in thinking about the subject, on my way up here, that perhaps a few brief word-pictures about the conditions that you may meet together with their treatment might be as useful a thing as I could bring to your attention.

The means of preventing these complications are the things you want to know.

Supposing for instance a case calls you out tonight, or you are called out tomorrow, to see a case that had an earache tonight. What can you do to prevent a complication?

The best thing you can do is to give vent to the effusion by early incision of the tympanic membrane. Those of you who are in large centers and have specialists at your elbow can call upon them. But a large proportion of the general profession is not so situated, and it seems to me that, in view of the serious results which arise from undue delay in the treatment of acute middle ear inflammations, every general practitioner ought to know at least enough about the appearance of a tympanic membrane to tell if it is, or is not, bulging and, if it is, to incise it, for by early incision of the drum, followed by the frequent use of a hot sterile douche, nearly all is done that can be safely done to prevent the serious consequences of an acute middle ear abscess.

And now just a word about the preventive use of ice, of which much was said a few years ago. In many cases its use certainly adds greatly to the patient's comfort, so much so that it appeals to the patient and the family physician to such an extent that, in spite of the specialist's warning not to use it more than twenty-four, or at the most thirty-six hours, its application is continued indefinitely. The progress of the mastoiditis is obscured, until suddenly symptoms of the most serious import present themselves; and undoubtedly the preventive use of ice, through its masking of symptoms, has led to many fatal complications. And on this account those of us who are doing special work in the Greater New York have virtually abandoned its use, and are limiting ourselves largely to early incision of the drum, and the hot douche or dry wick treatment together with of course appropriate general measures.

Now, supposing another case,—suppose a baby or young child was taken with an earache tonight and a week from today some one of you gentlemen are called in to see it. It has not had a running ear, it has not had any earache except for an hour or two perhaps, but the child is sick. Its temperature is 102 or 103. Examination of the lungs, stomach, and bowels reveals nothing; the temperature remains. Do not forget in those

cases to examine the ear drum and in the great majority of cases, such as outlined, you will find the bulging drum. Put a knife through it and muco-pus will well out and the case will immediately improve.

I have seen so many cases like that overlooked because the pain was freaky; they have no pain or only slight pain after the first night, but a general indisposition and some elevation of temperature.

Later, without vent being given to this secretion, you are more than likely to have a mastoiditis.

Take another case which may come to any of you.

Outside of the large centers where people have to go five or ten miles to a physician or send for a physician to come a like distance, they are prone to put off going or sending, as they are inclined to think an earache does not amount to much.

An adult has an earache followed, or not followed, by discharge—and remember that discharge is not a necessary symptom of mastoiditis—after twenty-four hours the pain may be greatly lessened or entirely disappear, to return again within a very few days, but not necessarily in the ear, nor even in the mastoid, but it must be, to be distinctive, limited to the affected half of the head, and is often looked upon by the patient, sometimes even by the physician, as some obscure form of neuralgia. These cases sometimes run on for three, four, or six weeks without seeing a physician, sometimes reaching the stage of sub-periosteal abscess or even grave complications before seeking advice.

Supposing you see a case before the brain complications develop; you find whether the ear is, or is not, discharging there will be more or less tenderness of the mastoid process, a tenderness which is often elicited only by firm pressure. A good plan is to seat the patient in front of you and make equal firm pressure simultaneously, and then you will make it clear to the patient as well as yourself that one is more tender than the other. If in addition you find the posterior canal wall close to the drum membrane drooping or sagging so that the membrane is partly hidden, then you have a perfectly clear picture of a mastoid abscess.

If with tenderness you have a discharge or no discharge, as happens to be the case, but the sagging canal wall, and another of the distinctive symptoms—a hammering or throbbing or knocking in the ear—you have all the symptoms. The case needs at once an opening of the mastoid to prevent further complications.

Now as to the further complications, just a word.

Dr. Smith has described to you some cases of lateral sinus inflammation. This is one of the complications which has been grappled with during the past few years with a fair degree of success, a great majority of the cases, if they were operated on in anything like a reasonable time, having recovered.

A frequent history of this condition is as follows: — a pain in the ear for from two to eight weeks, a discharging ear, or not; the pain continues

and the ear feels stopped up and is hammering and pulsating. Suddenly the patient has a chill followed by high temperature with sweating. Temperature returns to normal. A day or two days later there is another severe chill followed by high temperature and sweats.

Now with a history like that, gentlemen, you do not need to let the case go on one moment. If you wish to examine the blood do so, but with irregular chills like that, with high temperature and sweats, there is need of prompt action. If some doubt remains have a two-hour rectal temperature taken for twenty-four hours. With a temperature ranging up to 105, even 106 or 107, and staying there for about half an hour and abruptly shooting down to normal or subnormal, you have an absolute picture of sinus thrombosis. You need not hesitate.

In cases of brain abscess, another complication of these conditions presents much greater difficulty in diagnosis. One's suspicion should be aroused by a history of earache, neuralgia over side of head, slight fever coming on with irregular amount of vomiting and headache, usually frontal or occipital or on one side of the head. Vomiting persists at irregular intervals. Temperature by mouth may be subnormal; if you take it immediately after by rectum you may find a rise of temperature of from a degree to a degree and a half, — very significant is the slow pulse and slight elevation of temperature.

A case of that kind is a perfectly justifiable one for you to go in and search for an abscess. If you have a neurologist at your elbow to help you out you will be fortunate. I have always had one.

Of the ordinary meningitis forms there is very little to say. If you suspect meningitis, I would suggest a spinal puncture previous to operation and if you find a cloudy spinal fluid you might just as well give up the idea of operating successfully. That is my experience and others who have had larger experience are of the same mind.

Dr. H. L. Swain (New Haven): Mr. President and Gentlemen of the Society: I think Dr. Smith has done a very good thing for us in that he has presented his paper largely in the way of relating cases and in illustrating complications.

As I tried to think of something to say in response to the paper, with the contents of which I was not unfamiliar, I fell into the same line of thought that Dr. Sheppard reached as he was coming here and he has stolen some of my material. I am very glad indeed that he called attention to the question of prevention. It is evident to you, however, who have lived many years in this community, that there are lots of otitis media cases which discharge, and without any attention on the part of the physician, get well. There are other cases that do not. The great difference between cases lies in the question of drainage and the question of intra or middle ear pressure. If the fluid within the middle ear does not rise to a great pressure, these complications which have been so pointedly brought before you today will not appear.

I believe the secret of success in these cases is largely the question of drainage. If that is correct the point Dr. Sheppard so well brought out, of getting in an early puncture, is well taken and it does just as he suggests. Make the puncture early and generous. If you do that I am sure such cases as Dr. Smith related to us will not be as frequent as they are. We all feel that every case may lead to some serious disaster and we would like to form rules whereby that may be avoided. I believe that this one principle, if carried out thoroughly, of an early, free opening with good drainage, would carry us by many a rock in this little voyage that we make.

I believe you want to do one thing more and I wish to make it as emphatic as I can—attention to the incision is necessary after you have made it, also attention to the opening of the drum which nature has made to see that it is large enough.

Your earlier symptoms are caused by a filling up of the drum cavity. Keep an adequate opening. So fully do I believe this, that I think it is necessary to see such cases every day, as I want to see that drum and know that it is not bulging, or bulging but very little. No matter how large the opening is, if the drum is bulging there may be pressure enough to get an extension of the process into the mastoid or brain. There cannot be enough said on this point.

Now as to the question of ice. I believe firmly in it. Dr. Sheppard made a very strong statement.

He said he would use ice; that ice was a comfort, but he made qualifications. I do not think he bore down too strongly on the unsystematic use of ice, for such use will do more harm than good. Therefore I should like to put it before you that you should use ice in moderation, for by so doing you will certainly be tided many times over dangerous points. That is the pus is going from the middle ear toward the mastoid antrum and if you keep your ice on constantly, not interruptedly but constantly, for twenty-four hours you will so subdue the tendency to spread that you will perhaps prevent it altogether.

Ice is worth while in fighting mastoiditis and by its use you have done something for the patient, so I would like to leave the matter before you that you should use ice, but do not fail to use great precaution in watching effects. I quite agree with Dr. Sheppard that you should not keep ice on longer than twenty-four or forty-eight hours constantly unless your patient shows marked improvement.

Dr. Smith gave three cases where the sinus was incised with no pus found in the sinus itself.

I am going to be heterodox just now, and venture the assertion that if more care was used in opening sinuses there would be less infection. If you have opened a sinus canal and find pus around it, you must, according to rules of writers, open the sinus. That I believe is wrong as a fixed rule.

Give nature a chance and she will endeavor to draw up something of a barrier. The first thing in that connection is the thickening in the wall and nature, doing her work, produces a firm tissue if you will give her a chance. As a rule I try to expose the vein and uncover it generally. If later on you do not find symptoms are improved, then open the sinus by the jugular and go through all that you think necessary.

Then in speaking of the question of meningitis:

Meningitis is viewed as purulent peritonitis used to be. When I was brought up in medicine it was the idea that a patient who had purulent peritonitis was as good as gone.

Nowadays you general surgeons know in your practice how many cases you save of purulent, septic peritonitis by multiple incisions. I believe it is going to be possible to save many cases of meningitis, where the puncture does not show that the spinal fluid has already been involved, that have always been heretofore looked upon as fatal, if drainage is made from more than one opening.

Dr. E. Terry Smith (Hartford): One word in regard to ice: for the past two or three years I have used it but twenty-four hours. At the end of twenty-four, if the symptoms have not abated, I discontinue its application and change to heat, if agreeable to the patient; if not agreeable I do not use anything.

Dr. Swain said that free drainage of the middle ear would avoid complications of otitis media. There are a few conditions we find that will prove this will not always work.

For instance, we hear of a number of cases reported of mastoiditis without any previous otitis media at all. The patients experienced no pain in the ear at all and were operated upon, some with very bad mastoid processes and some with brain complications. With regard to opening the sinus: I think that in time we will get to tie the jugular before ever opening the sinus. If we consider that we probably have a sinus thrombosis, we will first tie the jugular before making an incision and in that way will be less liable to have secondary infection.

## The Diagnosis and Treatment of Some of the More Common Diseases of the Knee Joint.

PHILIP D. BUNCE, M. D., Hartford.

Although it is usual to go into a long and tedious preamble regarding the anatomy of the structures, I most gladly omit it and refer you to the standard text-books on the subject. Disorders of the knee are very common in everybody's practice, and are often a source of annoyance both to patient and practitioner. If everything goes well and the joint makes a rapid recovery it is a matter of little importance, but if the knee remains the same or progressively gets worse then signs of dissatisfaction and alarm begin to show themselves.

On account of the poor mechanical arrangements and the exposed position and the constant action, the knee joint has more troubles than any other joint in the body. Some of the general causes of knee joint trouble are increase in weight, some old injury to the other leg and thus causing increased work for the knee on the well side. Some of the varieties of pronated or flat foot may also be a cause. Sometimes the increased body weight is entirely the cause of the disability and the remedy is to correct this and reduce the weight. An old fracture of the thigh with an inch shortening, or an old club foot or some muscle paralysis of one leg may after many years cause the other knee to rebel at its unequal share of the work. A spinal curvature or certain occupations might produce the same effect.

In practically every case, traumatism will be given as the cause of the disability whatever may have been the true cause. In looking over quite a large number of knee cases curiously enough almost all of them have one symptom in common. A rather localized area, size of a silver half dollar, of pain and tenderness on the inner side of the knee joint just below the inner condyle of the femur.

If you will notice your next knee cases you can hardly fail to note this symptom. The cause of this symptom is hard to explain but it is probably due either to the fact that the inner half of the joint is less mechanically perfect or else that the larger share of the work is done by the inner half of the joint. It is a fact that the inner semilunar cartilage is injured and displaced very much oftener than the outer one.

Synovitis or "water on the knee" is probably the most common disease of the knee joint which comes to us for treatment. Some traumatism is given as the cause, the knee is swollen and tender, and hot and painful. If there is over one ounce of fluid in the joint cavity the depressions on either side of the patella disappear and the patella floats. The synovial pouch connected with the general joint cavity and laying on the lower anterior third of the femur is also more or less distended. Fluctuation may often be obtained at the back of the joint. The amount of the fluid in the joint and the acuteness of the symptoms vary very much in the different cases. The fluid may be present almost immediately after the accident or it may not be in evidence until after 24 or 48 hours. Ordinary acute articular rheumatism may simulate this condition exactly but its tendency to spread into other joints will soon make the diagnosis plain.

Treatment: Immobilization of the joint by well fitting splints extending from the ankle to the groin and the local application of ice bags is indicated in acute cases. The splints may be of wood, plaster of paris, metal, leather, or any other pliable material having sufficient rigidity. This treatment is continued indefinitely until the acute symptoms have subsided. After which the ice can be discontinued. Immobilization is continued and pressure is applied to the joint by means of bandages of flannel, stockinet, Bender ideal bandage, or even of rubber or

adhesive plaster. In order to have more effectual pressure the hollows about the joint on either side of the patella and in the popliteal space are snugly packed with cotton or gauze so the pressure will be uniform. By these measures the effusion into the joint will be checked and the fluid absorbed in many mild cases. And by keeping the joint quiet several weeks a perfect cure is obtained. Quite often after an apparent cure the patient begins to get around and the symptoms recur, the disease taking a fairly chronic course. The fluid reaccumulates and the joint is more or less disabled. The patient's resistance to various minor ailments is lessened and he complains of various disorders. Counter irritation about the joint by blisters, ichthyol ointment 40%, tincture of iodine, hot air baking, or the actual cautery may be of advantage. The Bier congestion treatment in chronic effusion seems to have little benefit. Aspiration of the joint with the greatest surgical precautions may show a vellowish fluid with a few leucocytes. Repeated aspiration followed by compression may be necessary to effect a cure. At the same time the general health must be improved in every way. Hoffman reports unusual success in the treatment of acute cases, founded on the method of strapping the ankle joint. The hollows about the knee are snugly filled with cotton and a stocking leg covers the limb from six inches above the joint to six inches below, or a bandage of sheet wadding is used in its place. Long strips of adhesive plaster are tightly wound around this in a circular direction. After 24 or 48 hours the swelling subsides and the adhesive becomes loose. This is changed every two or three days until size of the joint is normal and the patient is allowed to walk as soon as the pain will permit it. In some cases the adhesive is applied directly to the skin. The claim is made that by this method of treatment the cure is quicker, surer, and causes the patient less pain and inconvenience than any other. In the writer's opinion the best results are obtained by prolonged immobilization and compression of the joint so long as there is evidence of fluid. Almost equally important is the care of the patient's general health. No means should be omitted to keep him in the finest general health. By omitting this a fairly simple trouble may be the start of a joint tuberculosis.

Within the last few years efforts have been made to classify what has come under the general name of rheumatism. This classification while rude and imperfect seems to be a move in the right direction. In making the classification the symptoms and pathology have been carefully studied. Some observers are inclined to think that the classes are mainly different stages of the same disease, while others are quite sure that we are dealing with quite distinct conditions.

Hypertrophic or osteo-arthritis of the knee is a fairly common condition which comes to us for treatment. We cannot do better than to take Goldthwaite's description. "It may be a local or general process and is characterized by thickening of the edges of the articular cartilage forming ridges or nodes, which becoming ossified, interfere with joint motion. As the process extends, the cartilage at the points of pressure becomes absorbed and the bone near the articulation becomes sclerosed. The essential feature of this type is hypertrophy, and the symptoms are due largely to the presence mechanically of the thickened bone either from the limitation of motion or by pressing upon or narrowing the space occupied by the nerves.

The cause of the disease is not known, but cold exposure, strains, or injuries seem to be factors of importance. The treatment consists of fixation or rest for the part affected, to prevent irritation with only such internal treatment as would tend to improve the body tone and regulate the eliminative functions. The disease is not usually progressive and with proper treatment subsides, leaving little to show other than the thickened cartilages and new formed bone. The blood shows no special changes."

Goldthwaite's favorable prognosis strikes us as being rather optimistic. This is due to the fact that the disease is often confused with the atrophic arthritis which is usually a polyarticular disease and on that account is not described in this paper. The

prognosis of the latter disease is by no means so favorable. The X-ray photograph may be necessary to make a positive differential diagnosis.

Chronic villous arthritis of the knee is of particular interest because if properly diagnosed the prognosis is good. Otherwise the outlook for a good useful joint is very bad.

Goldthwaite has done much in this line and I give his rather concise description of it.

"In this type it represents a purely local process and is not a manifestation of a general disease. Seen usually in the knee, and is characterized by crepitus, or creaking on motion with tenderness and pain on use, the structures of the joint are usually relaxed, the crepitation being due to folds of the loose, flabby, and passively congested membrane rubbing together. At times under the continued irritation the folds become still further relaxed and fringes or loose tabs result. These may degenerate with the formation of lipomata. The fringes or villi at times interfere with joint motion and catch or lock the joint. The joint fluid in this class of cases may be normal or in excess if there is great irritation.

"The treatment consists in the early stages in stimulating treatment locally with relief of any joint strain, and with bandages to steady the joint and limit the motion. If the villi or the lipomatous change is marked, these features should be removed by operation. The process does not naturally tend to extend to other joints."

Much has been done in late years in the diagnosis and treatment of this disease. Cases of frequent effusion into the knee joint without much definite cause may belong under this class. Often a distinct fullness can be made out at the sides of the patella. The patient may have a sense of something slipping on flexing the joint. Some may have an appearance of considerable fluid in the joint, whereas on opening it the fluid may be even less than normal and the fullness due to the soft hypertrophied synovial membrane. The operation consists in making a lateral

incision two or more inches in length on the side of the joint showing most trouble. If the disease is not localized the incision is usually made on the inner side. The capsule of the joint is opened and the hypertrophied synovial membrane may at once protrude through the opening. Sometimes however the villi may be very small and very numerous and may hang down like stalactites. The synovial pouch above the joint may be filled with the soft mass of villi. The finger is used to explore the joint and the hypertrophied material is excised with scissors. The hemorrhage is usually insignificant and rarely are ligatures needed. No irrigation is used unless hot water is needed to stop hemorrhage. If the whole of the hypertrophied tissue cannot be removed by the one lateral incision a similar incision is made on the other side of the joint. The joint capsule is closed by interrupted sutures of silk or catgut and the skin by interrupted silk worm sutures or by a buried suture. A plaster of Paris dressing is used if the operation has been extensive, otherwise only a simple dressing is required. The stitches are removed in about a week and the joint is at once manipulated with or without an anæsthetic. The joint is manipulated every two or three days and the patient is allowed to use the limb at the end of two or three weeks. The end results in many cases are very gratifying but some of the cases of chronic hydrops are not much benefited even though hypertrophied synovial villi have been removed. This shows that the accumulation of fluid was due to other causes than the enlarged villi.

In speaking on the subject of knee joint disease it has not been the intention to cover the whole ground, for that would have been impossible in the limit of time at my disposal. It seemed best to limit the paper to the consideration of some of the knee joint diseases seen in adults and exclude the diseases seen chiefly in infants and children. Tuberculosis of the knee has not been touched upon. In the discussion however it is hoped that any member will be free to speak upon any phase of knee joint disease which may be of general medical interest.

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## DISCUSSION.

Dr. E. H. Arnold (New Haven): Dr. Bunce has left but little for me to add to his lucid presentation of the subject.

The very common symptom of pain on the inner aspect of the knee does not seem very difficult to explain. Forces can strike the knee from before, behind, and from the outer side. A force striking the leg from behind will make it yield in the knee, if it strike the leg from in front below the knee it will in most cases knock the leg from under the knee, if it strike above the knee it may bend the leg in the knee or then knock the body from its base. In none of these cases is the knee likely to be injured. Only if struck from in front directly on the knee will the latter be locked and unable to escape from injury. It is altogether different with impact received from the side. As one leg protects the inner side of the other impact is practically always received from the outside. Whether it strike the leg above, below or directly on the knee escape is impossible. The joint is laterally locked and the impact will spend its force on the internal lateralligamentous apparatus, injuring it nearly always, therefore the ever-present painful area described by Dr. Bunce.

I differ with the doctor as to the treatment of the uncomplicated acute arthritis cases. I prefer to treat them by active means, as for instance, dry hot air, massage, strapping and elastic bandaging. I not only allow my cases to walk, but would rather encourage the use of the joint within reasonable limits. The only interdict imposed is that of climbing stairs. Only traumatic cases with much tearing of the ligaments do I treat by rest, and immobilization, and these only for the time that these injuries might be assumed to need for healing, i.e., four to five days. Even during this period I use heat and massage, after that I allow the use of the joint.

I am glad to have Dr. Bunce draw attention to the decline in general

health so noticeable especially in the chronic cases. I fully agree with him that the general health in these cases needs looking after, this so much the more as it will be found that this low condition of general health is quite as often the cause as the effect of the local disturbance.

For the strapping of the knee I employ adhesive plaster strips ½-¾" wide by 6-8" long, arranged in alternately decussating and shingle-like overlapping layers, the decussation being placed directly under the patella, the strips come up on both sides of the joint. This I apply directly to the skin. Occasionally using a small wad of cotton to increase the pressure over the region showing the most marked effusion.

The hypertrophic arthritis cases are with ordinary means of treatment most unsatisfactory. If they come under treatment early the local measures may be aided a great deal by proper dietetic managment. The well-established chronic cases will not get well without operative interference.

Dr. P. D. Bunce (Hartford): I agree with Dr. Arnold in regard to the treatment of acute synovitis and think that the treatment depends, as he says, on the amount of damage done. If not very much organic damage is done, usually the active treatment is much 'the better, because the knee soon gets into a bad condition and it seems as though it would never get well. It is very discouraging. I have had some of these cases lately; I tried active treatment first; they seemed to linger on and linger on and I tried all the treatments. That is the way with some of the knee joint injuries, and then again you have good cases and you think you have got the whole secret.

In regard to the opening of the knee joint for arthritis, I think Dr. Goldthwaite's method is to open the inner side first and then, if necessary, if he finds there is going to be trouble throughout the knee joint, he makes an opening on the other side, these incisions being from one to two and one-half inches in length.

I am very glad the Doctor spoke on tuberculosis. That is a very large field, in fact too large, I feel, to be included in my paper.

MEDICAL PAPERS.



## Light as a Therapeutic Agent.

JOHN B. KENT, M.D., Putnam.

Light is of universal necessity to the life and well-being of both animal and vegetable cell development and sustenance. Without this universal life-preserving, mind and body invigorating energy, life, both animal and vegetable would cease. In the beginning God said, "Le't there be light and God saw the light that it was good." The source of all natural radiant energy is the sun. Under the term "radiant energy" we group a number of rays of different wave lengths, that are either emitted naturally by other substances, or are produced artificially by the aid of various apparatus manufactured for the purpose. The rays emitted are either directly utilized, or indirectly, in the form of transformed radiant energy.

Since the discovery of the X-rays by Roentgen in 1896 there has been aroused a general interest among the medical profession, in the subject of radiations of various kinds, as well as their application in therapeutics.

We have brush discharges in vacuum tubes, radiant heat, ultra-violet rays, cathode rays, leucodescent rays, uranium, radium, actinium, etc., etc. Some of these are of more interest to the student of physics than they are of any therapeutic value to the physician or surgeon. What the physician or surgeon wants to know is, which of these he can make practical use of, by the aid of which he can successfully supplement his efforts in the use of other proven agencies, in the palliation and cure of disease. That there is undoubted, powerful, readily available, remedial agents in the X-rays, and the intensified white light, has been abundantly demonstrated to all who have taken the trouble to

investigate, is beyond question. This fact is so well established that any testimony I might personally give would be superfluous.

Light is one form of vibratory energy, simply of very high frequency, and as we know the value of vibratory energy in restoring function, correcting perverted and impaired nutrition, and re-establishing circulatory equilibrium, we can well afford to give some thought to this agent, hoping that on therapeutic grounds, good practical results may follow its proper use. As I have said, the source of all natural radiant energy is the sun. The real question that at present concerns us, is simply one of technique. If the sun's rays are to be utilized, we have the choice of the earlier method of Finsen, who gave exposures of moderate intensity for an hour or more daily and continued these until he accomplished his object; or we may adopt the more radical method of Thayer of San Francisco, who uses concentrated rays of such intensity that the parts are not simply scorched, but actually carbonized, and the morbid tissues destroyed, in many cases at one single sitting.

In the journal of the American Medical Association November 11, 1905, mention is made of Vidal's experiments at Hyeres on the southern coast of France, in the treatment of lupus or tuberculous ulcers, all of which were cured by the systematic exposure to the direct sunlight for several hours daily. We all know something of the power of the concentrated rays of the sun. Take if you will a concave lense, and focus the sun's rays on a given point of the body and you will almost immediately produce a cautery effect if desired. In an article on solar-cautery in the treatment of skin diseases one writer says, "During a medical and surgical practice of over forty years I have used no cautery or caustic to compare with solar heat in its beneficial results. Unlike other caustics or cautery, it can be applied with safety upon the most delicate tissues, and is at all times under the control of the operator." It has other advantages of much value.

The system receives this treatment kindly. The irritation following its application is surprisingly slight and of short duration—the pain subsiding immediately on removing the lense. Blistering is avoided; the burning is carried beyond that point—the tissues are carbonized. I have yet, says he, to experience any permanent injury therefrom." Apply this concentrated sun's rays to a patch of psoriasis if you please or to an epithelioma of the skin and disease will rapidly appear. This is probably due to the chemical actinic effect changing the metabolic action of the cells upon which the light rays exert their energy.

A few years ago Finsen of Copenhagen took up the question of utilizing the sun's rays in the treatment of superficial malignant disease; but instead of depending on the caustic effects sought to exclude them, and instead employed the so-called "chemical or actinic rays, namely, visible rays of short wave lengths, and also invisible ones of still shorter wave lengths." That this method was effective in many cases of malignant diseases, admits of no doubt, but its practical use was accompanied with serious inconveniences, namely, the length of the exposures (one hour or more), in many cases daily. It is generally considered and altogether probable that the chief efficacy of the treatment was due to the ultra-violet rays, and so Finsen increased the efficiency of his apparatus by substituting the electric arc for sunlight and quartz for glass as the medium through which the rays were transmitted. This materially shortened the length of the exposures, as it has long been known that the light from the ordinary electric arc is accompanied with a much larger proportion of ultra-violet radiations than sunlight.

The wonderful discovery of Roentgen that certain radiations would readily traverse many bodies that are absolutely opaque to luminous rays naturally led to an investigation of their influence on the human tissues, and it was soon learned that undue exposure to these rays led to more or less injury, and, in fact destruction of the tissues subjected to their influence. From this

it was but a step to an experimental research into their therapeutic uses, and it was found that they could be used to advantage in many of the cases in which the ultra-violet rays had already been found useful by Finsen and others, to wit, skin diseases, and superficial lesions of a malignant character. That there was a notable difference between these radiations, however, was early apparent.

"If the wave theory of light is correct, it is thought more than probable that the ultra-violet rays are etheric vibrations with wave lengths."

"On the other hand there is but little, if any, evidence that the X-rays have any relation whatever to etheric vibrations; or if they do, there is absolutely no clue to their wave-length." If we compare the Roentgen rays with the ultra-violet radiations we will see a notable difference in their physical manifestations.

"X-rays cannot be reflected, refracted or polarized. The ultra-violet rays can be reflected, refracted, and polarized. X-rays can penetrate and traverse many bodies that will not permit the passage of luminous rays, such as wood and aluminum. The ultra-violet rays will not penetrate many bodies that are perfectly pervious to luminous rays. X-rays will readily traverse tissues and readily influence their nutrition, even the deeper tissues. Ultra-violet rays will not influence the deeper tissues, and very mildly the superficial tissues, unless the part be dehæmatized. The X-rays will traverse many layers of paper, or a book for instance, but the ultra-violet rays will not penetrate a single leaf." So we see that while there would seem to be some resemblance yet there is a notable difference. These facts would indicate that their agents are totally dissimilar; although in certain forms of disease may be both used to effect the same end.

To my mind the ray that has shown the most valuable therapeutic results, and the one that is used perhaps more than all others combined, is the X-ray. When we speak of the X-ray as a therapeutic agent, we do not merely refer to the X-ray proper, which leaves the Crook's tube as such, but to all the various

forces emanating from the tube. According to Freund these are made up of, "heat; ozone; cathode rays; ultra-violet rays; Roentgen rays; sparks and electric charges from the surface of the tube; and rays of unknown character." There is still considerable dispute as to the method in which the X-ray accomplishes therapeutical effect. Some observers claim that it possesses very strong bacteriacidal properties, while others assert that the bacteriacidal effects in ordinary therapeutic doses are nil. The preponderance of evidence seems to be that the only effect the X-ray can produce on tissue is stimulating if used in small, and destructive if used in larger quantities. I believe the action is probably entirely a destructive one — the X-ray being purely a destructive agent. It will tend to destroy tissue wherever it strikes it, and the degree of destruction is in direct ratio to the quantity of ray absorbed. The fact that diseased tissue has a much lower vitality, and that it will be destroyed before healthy tissue begins to be affected, is generally conceded to be the explanation of all therapeutic benefit. The stimulating effect is unquestionable, but it is simply a degree of destruction. "The first effect is a stimulation of the nerves of the bloodvessels, thus interfering with the blood supply of the rayed tissue. If this stimulation is carried to a certain degree it produces a paralysis of these nerve filaments accompanied by vascular dilatation or hyperæmia. If the ray has not been pushed beyond a certain limit, this condition is only temporary, and we have what is called a first degree of X-ray dermatitis. This is not to be feared, and is very often even desirable in treating malignant disease. If stimulation has gone beyond this limit the paralysis of the nerve filaments is carried to a higher degree, and we have ædema and other symptoms of inflammation. which constitutes the second degree of dermatitis. paralysis is complete, the vessels cannot regain their tone, and we get necrosis and gangrenous degeneration of tissue. This is the third degree of dermatitis. The latter two degress we should always avoid if possible."

Today the X-ray has lost most of the dread formerly attached to it, and we can begin the treatment of a patient with a feeling that if we take ordinary precautions we need not fear that we will aggravate the condition, even if we cannot cure the disease. I have repeatedly produced a first degree of dermatitis; indeed I aim to push the treatment to that point, which I have found to be always a decided benefit to the patient, for having once established this condition, disease disappears more rapidly and the part sooner returns to its normal appearance.

In the superficial variety of cancer (epithelioma) the treatment with radiant energy is very gratifying. The method of choice up to a short time ago was the X-ray, but lately the high frequency spark has gained a great deal of prominence. Perhaps the combination of both is the best. Not having had so much experience with the high frequency spark I am not able to speak as to its relative merits. Perhaps I cannot do better than to quote the words of Samuel Stern of New York. "The most satisfactory method to follow is to treat all cases of epithelioma where there is considerable destruction of tissue with the X-ray, and those that have a raised, hard or horny surface with the high frequency spark. The advantage of the high frequency spark is that we get much quicker results, and that there is no danger of burn compared with that from X-ray. The disadvantage is that the treatment is attended with some pain, while that by the X-ray is entirely free from pain or discomfort."

They are of great value in the treatment of other malignant growths, especially in their ability to stop pain and prolong life, but should only be used in inoperable cases. All cases of subcutaneous or abdominal cancer which can be surgically operated upon should be so treated. Of this class of cases, radiotherapy has not up to the present time a large enough percentage of successful cases to justify its preferential use, or to cause the patient to lose the benefit which may accrue from timely surgical intervention. Of inoperable cancer radiotherapy yields the best results, although often only palliative.

It would be a waste of your time for me to go into detail over the different forms of skin diseases successfully treated by radiotherapy, or to give the percentage of cases cured by the different operators which has been published in the medical journals. I will simply say that in my hands radiotherapy has been most satisfactory both to myself and to my patients.

My object in grouping together and presenting these few facts which I have endeavored, very briefly and imperfectly, to bring before you today, is not to produce anything particularly new, but simply to try to arouse fresh interest in the subject of light as a therapeutic agent—a subject of such vital importance, easily within the reach of all. Neither is it my purpose to submit any data concerning the different diseases treated by the X-ray, nor to discuss the technique of X-ray exposures in disease. Caution is, of course, necessary. Unless a certain amount of care is exercised in the application of each exposure, very unpleasant results might follow in the form of obstinate burns. My plan is to cover the parts surrounding the disease with a layer of thin sheet lead, and give treatments every three or four days, until I have produced a dermatitis of the first degree, each exposure lasting perhaps ten or twelve minutes, the tube placed at a distance of four or five inches. Subsequent treatments less often, from five to ten days. With these simple precautions you need have no fear of burns, and you will have the satisfaction of seeing the disease in a very large per cent. of your cases gradually melt away before your eyes, leaving almost no scar, but instead a smooth surface even with the surrounding skin. If the part treated is the hairy part of the face or the scalp, after several treatments the hair will drop out, but unless the treatments are continued a long time, this will grow in again without change of color, as healthy as before.

In conclusion, let me quote Dr. Fred Wise of the New York Skin & Cancer Hospital. "Among the most rebellious affections with which the physician has to deal, ringworm and favus rank prominently as examples wherein the employment of the X-ray has shown most brilliant results. Closely allied to tinea barbæ is the so-called non-parasitic sycosis. Many of these cases can be cured by comparatively few exposures to the X-ray.

In the treatment of Keloid, X-radiation gives better results than any agent employed heretofore. In rodent ulcer, a disease which frequently resists all other forms of treatment, radiotherapy has shown very promising results.

The X-ray will cure ringworm and favus of the hairy skin more rapidly and reliably than any other method of treatment; the advantages of the method are, that it is painless, and harmless when properly used, and that it cuts down the expense incurred by the city in the treatment and cure of these patients to a very considerable extent.

The X-ray gives very satisfactory results in the various forms of cutaneous tuberculosis; in kerotosis, in infiltrated patches of chronic eczema, lichen planus, pityriasis rubra; in tuberculous ulcers.

X-radiation relieves pruritus, burning, tingling, and pain, and decreases the discharge and foul odors of various dermatoses, often causing them to disappear completely. In selected cases it is the ideal agent in the treatment of epithelioma and rodent ulcer."

## DISCUSSION.

Dr. R. A. McDonnell (New Haven): Mr. President and Gentlemen: I did not have the pleasure of hearing the first part of the paper, but was very much interested in what I did hear.

I endorse warmly what Dr. Kent had to say.

I am giving the results of five years' experience in the use of the X-ray and the high frequency current. In regard to the latter, I would like to say the results have not been up to my expectations and the high frequency current is being used less and less in my office as time goes by.

In the destruction of small growths and in the action on nævi and angiomata of small size in the skin, I get some excellent results from the use of the high frequency current. It is used to produce a blister. It leaves absolutely no scar and is better than the electrolysis needle in dealing with such small things. For other purposes it does not seem to me to do as well.

The X-ray has been a source of great satisfaction to me. I have lost all fear of burn. I have had just one burn in five years that was more than I wanted. I do not think it necessary to warn the patient against the danger of X-ray burns, scars, etc.

I would like to comment on the unfavorable cosmetic results, however, that may be obtained. Two years ago at Atlantic City there was a discussion as to using the X-ray in removing superfluous hair. Many women go to doctors for that result. The hair comes out as the Doctor has described, but will grow again after a time, say a few months, but does not grow as thickly the second time as it does the first. It comes back in a few months, but not as thickly as before.

In some extensive cases I have given about four or five series of exposures, each series sufficient to cause a falling out of the hair present. In one case which I have seen recently there has been absolutely no recurrence, although the girl had a large amount of hair on her face; she had a streaked, red-scarred appearance on her face which was far worse to my mind than the hair which she complained of first. It is a miserable looking result, and it could not have been foreseen, I think, because I did not get any such result for several months after exposures were discontinued; and so, as a sort of warning for others, I would like to cite that case.

I have seen similar conditions, but not so extensive as this case. Where you are using it simply for cosmetic purposes I think you must bear in mind the possible unpleasant results.

Dr. M. S. Bradley (Hartford): Gentlemen: I believe in Radiotherapy and Phototherapy. I believe that a great deal is being done along these lines every year. Good work is being done.

It is only comparatively recently that in the Finsen Institute in Copenhagen they have done such remarkable work, where they have by the actinic rays cured so many hopeless cases. The X-ray is, of course, of more practical value and is used more extensively than the actinic, but the X-ray is in its infancy; the whole subject is in its infancy, and I think we are making progress along this line and learning something every day; it seems to me we are making more progress than in any other therapeutic line.

The mechanical apparatus for producing X-ray is changing; everything about it is changing; there are a great many new things and a great many things that are bound to come.

The dosage of X-ray now on certain patients is rather experimental, starting out with small doses and gradually working up to a large one.

The number of X-ray accidents is decreasing year hy year, and on the whole I think it is growing in favor.

## The Significance of Cardiac Pain.

EDWARD K. ROOT, M.D., Hartford.

Pain in the region of the heart is mentioned as a symptom of nearly all the varieties of functional and organic diseases of that organ. A somewhat careful review of the standard authors on this topic reveals the fact that while pain is mentioned as a possible symptom little importance is attached to it, and except in the descriptions of angina pectoris the development of pain calls for no especial comment either from the point of view of the prognosis or as a factor in the treatment. Little is said concerning its causation, and less of its pathological import. It seems, therefore, wise to commence our inquiry by postponing for the present the discussion of the symptom group known as angina pectoris, unless indeed we are inclined to the view that attacks of pain during the development of some form of organic heart disease constitute in themselves a mild type during angina pectoris, the so-called anginoid pains of some writers. In other words, then, are we to consider pain of any considerable degree of severity occurring during the course of a demonstrable organic heart disease as due to the same causes and identical in character, though less in degree, as the agonizing attacks of pain that occur during true angia pectoris? There is no one symptom more difficult to obtain an accurate description of from the patient than the pains accompanying heart disease. We must accept the patient's description of them both as regards their character and intensity, for, as a rule, they are not constant, they occur at irregular intervals, and it is rare that the physician has the opportunity of closely observing the patient during an attack and obtaining the objective signs of acute suffering from his own observation.

Many patients cannot distinguish, or at least cannot express themselves clearly, in differentiating between pure pain and distress due to cardiac or renal dyspnoea. The degree of suffering too is modified by the personal equation of the patient, this sensitiveness to pain generally, and, as the significance we must attribute to this symptom is often modified by the degree of suffering it causes, the importance of obtaining as accurate an estimate as possible of its severity is obvious enough. Careful cross-questioning of these patients is essential to determine the existence, character and severity of their suffering, and often a familiar comparison, as for example, whether the pain resembles a hard toothache, or acute neuralgia, will enable the physician to obtain a better idea of the nature and degree of the pain itself. While practically all authors agree that pain may accompany all of the organic diseases of the heart, they all likewise agree that all of these same diseases may run their course without at any time the patient suffering any degree of actual pain, - even in the acute inflammatory affections of the two great serous membranes, the pericardium and the endocardium lining the heart's cavities, even acute septic or ulcerative endocarditis frequently run its course unattended with any pain whatever. Pericarditis with or without exudate can often only be diagnosed by a most painstaking study of the physical signs; and even a dry pericarditis may be comparatively painless, a striking contrast to the suffering usually attendant upon an inflammatory process of the adjacent pleural membrane, a pathological process practically identical. Inflammatory and degenerative changes of the myocardium are rarely attended with any pain. Acute inflammation of the aorta and aneurism of the aorta is usually painful, but in these cases pain is usually due to distension incident to the progress of the disease and the pressure brought to bear upon adjacent organs. Slowly developing changes in the aorta, and the heart itself, fibroid degeneration, arterio sclerosis, and atheroma, dilatation and hypertrophy of the heart involving one or more of its cavities are rarely signalized

by any degree of pain unless it is due to the size of the growth and to pressure effects. In general terms, therefore, it is fair to say that in the greater number of cases of organic heart disease, including the degenerative lesion of the aorta and coronary arteries, pain is the exception and not the rule. Its significance, therefore, when the becomes a part of the symptom group in any case of heart disease is, I think, well worthy of our attention.

A word should be said here concerning the symptom group we understaind by the general term angina pectoris. Very much confusion still exists in our profession concerning the precise limitations of this term. The literature of angina pectoris is so voluminous that time will not permit me to more than allude to the subject, but it may be said in brief that all authors agree that in true angina pectoris there are three predominant symptoms, namely,—sub-sternal pain often radiating to adjacent organs, a sense of constriction in the chest, a sense of impending death. These three subjective symptoms occur in varying degrees of intensity and, according as one or the other predominates, we have the various classifications and varieties of the disease such as angina pectoris, vera, angina sine dolore, syncope, anginosa, and a second group including pseudo angina pectoris, and toxic angina pectoris.

Authorities are not agreed as to whether true angina pectoris can exist without demonstrable organic lesion of the heart, but I think the majority of the later writers are coming to the opinion that, in addition to the three subjective symptoms above mentioned, we should also be able to demonstrate the existence of high blood pressure, hypertension or some other evidences of disease of the aortic area of the heart in order to be justified in classing the disease as true angina pectoris.

Sansom in his "Diagnosis of the Diseases of the Heart" states under page 428: "There is an agreement among many observers that in cases of angina pectoris the pressure often during an attack is augumented," and further on he states, — "If a patient, complaining of symptoms which closely resemble those of angina pectoris, manifest on repeated examinations, and especially on

examination during the continuance of the painful crisis, low arterial tension, it is almost certain that the affection is false and not a true angina. If, on the other hand, the symptoms, even though they do not seem to be typical, are attended with augmented arterial tension, the fear, present or remote, of true angina is justified.

Babcock on page 240 of his "Diseases of the Heart" states that "it should be thoroughly understood at the onset that angina pectoris is but a symptom and not an independent affection," and further on he proceeds to state that "accordingly it has been determined that it is not so much the fact of disease of the coronary arteries as it is that this disease must interfere with the cardiac circulation if it is to give rise to attacks of angina pectoris; accordingly, a condition which is especially apt to result in angina seizures is narrowing the mouths of the coronary arteries by sclerotic process." Babcock distinguishes pseudo anginoid attacks from the fact that the original source of irritation is entirely different. In pseudo angina the irritation is along the track of the intercostal nerves or some other visceral trunk, whereas in true angina it also passes to the medulla. In other words, the existence of actual lesion of the coronary area, whether demonstrable before death or not, is essential for the development of true angina pectoris.

Gibson on page 154 of his "Practice of Medicine" states "Among the exciting causes of true angina, anything that will raise the blood pressure and divides the symptom group into the neurosal reflex and toxic,"—terms which will explain themselves.

It would seem, therefore, that we were justified in applying the term true angina pectoris to a symptom group characterized by sub-sternal pain, a sense of oppression in the chest, and a sense of impending death, these symptoms occurring simultaneously or appearing in various degrees of intensity, providing we can also demonstrate to our satisfaction the existence of an abnormal degree of blood-pressure at the time of the attack or existing as a

more or less permanent condition. It being understood that abnormal blood-pressure is in itself merely a symptom of some underlying pathological process of the heart or arteries.

Whether we are justified in considering a very moderate degree of any one of these symptoms, such as occasional moderate cardiac pain or sense of oppression but occurring with a demonstrable plus tension or other evidences of arterial or cardiac disease, as a modified type of true angina pectoris with all that implies is a question I wish to submit for discussion.

In this connection I cannot do better than quote from Prof. Osler: "There are many grades of true angina. A man may have slight pericardial pain and sense of distress and uneasiness and radiation of the pains to the arm and neck. Such attacks follow slight exertion, or a disturbing emotion may alternate with attacks of much greater severity, or they may occur in connection with a pulse of increased tension and signs of general arterial sclerosis. In the milder grades the diagnosis cannot rest upon the symptoms of the attack itself since they may be stimulated by what is known as neurotic or functional variety, but the diagnosis should be based upon examination of the heart and arteries and a careful consideration of the mode of onset and symptoms."

With the introduction of the modern sphygmomanometer there has been placed at our disposal a new means of accurately determining variations in the hlood-pressure without the use of which those variations are largely conjectural. While the trained finger will in the majority of cases give a reasonably accurate estimate of the degree of tension in the artery, it is often very misleading. The depth of the vessel beneath the tendon, its size, the consistency of the walls of the artery itself are all factors which tend to modify the force with which the wave impulse reaches the observer's fingers at the wrist, and those of you familiar with the use of the sphygmomanometer will I think agree that its records are often quite at variance with the apparent pressure noticed on feeling the pulse. Often a marked degree of hypertension can be demonstrated with the sphygmomanometer which cannot be detected by

the character of the pulse at the wrist, and can only be determined by the intensity of the recoil of the blood against the aortic valves by listening over the base of the heart. In long standing cases of hypertension frequent enough in hard-working men approaching 50 years of age, especially when the heart begins to fail slightly on extra exertion, or has not sufficiently hypertrophied to keep up the necessary tension, marked variations of pressure under different conditions are very noticeable. An observation will give a plus tension while the patient is quiet, but after moderate exertion not sufficient to cause any degree of dyspnœa the tension will fall on a second reading, indicating the heart is not equal to its task. In other words the symptoms of failing compensation are present. It is in these cases that a moderate degree of cardiac pain is experienced which is in my opinion as important a symptom as the hypertension itself. Pain under these circumstances often precedes dyspnæa, for shortness of breath is common enough symptom in health, and what constitutes undue exertion for one man, and is of no significance, becomes important in middle life if associated with hypertension.

A word should be said here concerning the so-called functional angina pectoris as distinguished from the group we are considering due to organic disease. There are two main groups, usually divided into the neurotic and the toxic. The distinction is based upon the fact that the neurotic form may appear at all times, is more common in women, is associated with nervous symptoms, and the attacks are usually more prolonged, and are usually associated with restlessness instead of the immobility of the true variety, and often with hysterical manifestations. The toxic variety, usually the result of alcohol or of an excess of tobacco, sometimes offers more difficulties in establishing the diagnosis, but a history of the use or abuse of tobacco, or of alcohol and the prompt relief of all symptoms on moderating or ceasing the use of either of these agents usually suffices to clear up the diagnosis. Great difficulty may be experienced, however, in differentiating certain varieties of gastric pains, or of pains due to some functional or organic disease of the stomach, particularly of the cardiac orifice from true anginoid pains due to heart disease. The difficulties are increased from the fact that the two conditions often occur simultaneously, for any failure of the circulation due to heart disease usually results in marked disturbance of gastric digestion, a disturbance that may readily give rise to sharp attacks of gastric pain. The fact too that in true anginoid attacks much relief is experienced by gulching up wind from the stomach, or perhaps from vomiting, often misleads the physician into believing that the source of the trouble is gastric rather than cardiac. As a rule, however, gastric pains are more prolonged and less intense than the cardiac variety, --- the location is usually at or near the end of the sternum and not definitely the sub-sternal or chest pains, and the sense of constriction which nearly all patients describe as accompanying the pain, or indeed being a part of it, is absent in gastralgia. Intercostal neuralgia will sometimes mislead but a careful examination of the chest for the tender points where the intercostal nerves emerge from the fascia should materially assist in clearing up this point, and the pain of an acute inflammatory lesion such as pleurisy or a pericarditis can readily be differentiated by the additional symptoms accompanying these conditions. The main point to be settled in estimating the importance of attacks of cardiac pain is, therefore, the condition of the heart and circulatory organs, and after obtaining the patient's history and as accurate a description as possible of the symptoms complained of, a most careful examination should be made to determine whether there is any commencing cardiac incompetence to account for the attacks of pain. The patient should be stripped to the waist, placed in a good light, and any evidence of superficial pulsation at the apex, epigastrium, or in the vessels of the neck noted. The apex beat should be noted by palpation, and verified so far as possible by percussing at the line of relative and absolute dullness of the heart. It is always wiser to measure from the midsternal line to the point of the apex beat, or the outside limit of cardiac dullness rather than by the relation of this point to the nipple, which is obviously uncertain, particularly in women. Auscultation over the various valvular areas will determine the relative intensity of the first and second sound and give indication of the efficiency of the heart's systole in comparison with the arterial tension against the aortic valves. A marked increase of the aortic second sound so that it is relatively louder than the first sound at the apex is suggestive of a weakened heart action, or a heart laboring to empty its contents into an artery against resistance. The relative intensity of the aortic second sound and of the pulmonic second sound is the only means we have of judging the relative pressure in the two circulatory systems, for we cannot place our finger on the pulmonary artery as we can on the radial to judge of the efficiency of the right heart to do its work.

If a sphygmomanometer is available, it will give invaluable information of the blood-pressure, especially when its readings are checked by a careful study of the heart itself. The heart should always be examined, first with the patient recumbent and perfectly relaxed; second, in a sitting position, but leaning well forward; and gain after a few minutes of fairly active exercise, such as swinging dumb-bells, or pulley-weights, in order to determine the action of the heart after somewhat slight strain has been put upon it. If, as the result of these careful tests, no fault can be found with the circulatory apparatus; exercise reveals no failure of the heart to respond, and the age of the patient and general history precludes the probability of a latent syphilitic or alcoholic history, we are, I think, justified in attributing no importance to even comparatively sharp attacks of cardiac pain. If, on the other hand, the age, previous history, and general makeup of the individual suggests a failing compensation, and examination discloses any tendency towards enlarging left heart or rising blood-pressure with or without any perceptible cardiac murmurs, attacks of pain have a very serious significance, and should never be attributed to indigestion, to intercostal neuralgia, or to anything but where they properly belong, namely, that the heart itself is at times over-taxed and is demanding relief. The prognosis of the conditions we will consider must naturally depend on our ability to arrest the degenerative changes already commencing in the heart muscle. It must not be forgotten that, even in classical angina pectoris where the prognosis is grave, these patients often live for years, and in some instances the attacks grow progressively milder rather than more severe. In the variety we are considering, what we might almost call incipient angina pectoris. the prognosis is relatively far more favorable. The pain from which these patients suffer compels them to halt, and rest the heart during the paroxysm,—they are far less likely to overstrain their slow failing heart if attacked with this variety of symptoms than they are when the failing circulation is only manifested by dyspnæa. The pain is too insistent to be ignored; the majority of these patients suspect that they are suffering from angina pectoris, and apply early for relief, and in many instances you should be not only able to afford them relief, but to very materially prolong life. The milder the paroxysm, the more readily it yields to rest and the prolonged treatment that all cardiac lesions demand, the more favorable the outlook. There are many difficulties in treating this class of patients. The majority of them are men in middle life. Pain is rarely an element of cardiac failure in old age, and men in middle life resent control, and will postpone submission to the inevitable as long as possible. But the earlier they come under treatment the better the prognosis and the greater opportunity you will have to restore the circulation to conditions which makes life tolerable for them.

It does not seem to be necessary to go much into details regarding treatment or as to the treatment of broken compensation from any cause. As a rule the attacks of pain yield readily to the arterial dilators, the amyl-sodium nitrate or the nitra-glycerine, the classical treatment of attacks of angina pectoris first discovered by Dr. Lauder Brunton. Chronic hypertension, the most obvious symptoms of arterial sclerosis in its earlier stages is more difficult to manage. It demands very moderate mental and physical work and cessation from anxieties and the demands of active business

if that business is wearing; frequent baths to keep the skin active, and calomel or jalap-purge once every week or ten days, and the more or less continual employment of the iodides. The nitrates I have found of great use in some of these cases and tincture of aconite. If the sphygmomanometer is used it must not be forgotten that there is no absolute standard of blood-pressure that can apply to all ages and to all conditions. A man with well developed arterial sclerosis requires a far higher blood-pressure to satisfy his tissues than a younger individual with no such lesion. In other words, the pressure must be kept up to the point necessary to supply the tissues even if that pressure appears abnormally high. The majority of cases of arterio sclerosis suffer little or no inconvenience from high tension while the heart remains competent. On the contrary there is without doubt a degree of exhilaration and ability to do hard work, and great activity both mentally and physically accompanies an abnormally high bloodpressure. But when the heart can no longer carry on the labor of driving the blood through the diseased arteries, and begins to fail, then these patients suffer from the classical symptoms of arterio sclerosis: - dropsy of the feet, vague cerebral symptoms; fainting attacks; troubles of vision; singing in the ears, -- symptoms which are superseded by the more obvious symptoms of cardiac incompetence. The observer must satisfy himself by careful observation and study of each case at what point the circulation is most satisfactorily carried on, and endeavor so far as he can to keep the blood-pressure at that point.

We have no new drugs with which to treat these conditions of cardiac and arterial diseases,— the Nauheim baths have proved of advantage in many cases, but can in nowise supersede the use of digitalis which is, after all, our mainstay when a cardiac stimulant is wanted. In strychnia we can often support the action of digitalis, and in cases where the heart is apt to become slow and feeble strychnia will often act most beneficially. Morphine must be our main reliance in the later stages, and I fully agree with Babcock that it is not only a much needed sedative, but is in itself a cardiac stimulant of no mean value.

In conclusion let me say that I believe that cardiac pain, however slight, when occurring in connection with probable or demonstrable lesion of the heart or arteries, is a symptom of serious import; that it is caused by the same conditions developing the overwhelming attacks of pain, oppression, and fear of death we call angina pectoris; that angina pectoris may be so mild as to be a slight pericardial pain, sense of distress or uneasiness, and that the prognosis of angina pectoris itself is, therefore, relatively favorable in the mild, and not necessarily fatal even in the more severe types of the disease. The importance, however, of recognizing the true cause of cardiac pain, and acting accordingly, is my principal object in bringing this subject before you today.

### DISCUSSION.

Dr. George Blumer (New Haven): I have so very little to say I hardly think it is necessary to come forward.

The reason why I have so little to say is because I agree so thoroughly with what Dr. Root said.

I believe the question of cardiac pain in connection with organic diseases of the heart is practically the same as Dr. Root has said. There are a few points, perhaps, on which I might not absolutely agree with Dr. Root. I think we find pain perhaps more frequently than he says in old men, for the reason of the changes in the coronaries. The common type of arterial lesions occur in middle-aged men and consequently that is the reason why cardiac pain is more common in middle-aged men. We also get these pains in older men. I fully agree that in many instances the degree of pain is exceedingly slight.

I have personally had under observation cases which appeared originally complaining of symptoms, which they hardly described as pain, but a sort of heavy feeling of oppression, which subsequently developed typical angina pectoris.

So far as the use of the sphygmomanometer is concerned, I think the majority of cases can probably be diagnosed without its aid, but there is a minority of cases in which there is quite extensive arterio sclerosis and in which there is very little change in the peripheral vessels.

This disease sometimes attacks the vessels of some one organ and sometimes another. My general recollection is that in the majority of cases of arterio-sclerosis the aorta and coronary arteries are those most frequently attacked. In cases where they are the only ones attacked, I think the use of the sphygmomanometer would be of great use in sustaining the diagnosis of the cardiac pain.

# The Diagnosis of Kidney Insufficiency and the Treatment of Uraemia.

OLIVER T. OSBORNE, M.D., New Haven.

I do not believe that uraemia is caused by diseased kidneys alone, but that it is largely due to disturbances of the liver.

The liver makes bile and glycogen, and stores the latter and iron. It also makes urea out of ammonium salts, which probably reach the liver in combination with sarcolactic acid or as lactate of ammonium. Extirpation of the liver in animals almost entirely prevents the formation of urea, which excretion is replaced by the ammonium salts and perhaps by leucin and tyrosin, and death soon occurs, generally preceded by convulsions. The liver has a controlling action on toxins, alkaloids, and strong drugs, and it is this organ that allows a larger dose of a drug to be tolerated by the stomach than when given hypodermatically. In other words, the liver is our Pasteur filter, and the blood leaves it standardized. If any disease or condition interferes with liver function the system is poisoned by its inability to care for the waste products of its own metabolism, urea is diminished, and ammonium carbamate remains in the blood. The liver cells prepare the decomposition metabolic products for kidney excretion, and if they do not prepare them perfectly, the kidneys are irritated and disturbed by their attempt to excrete substances that are not chemically perfect for such excretion. Hence mal-function of the liver will sooner or later cause irritation, chronic inflammation, and pathologic kidneys.

The amount of kidney excretion depends largely upon the blood pressure. Anything that causes a general contraction of the blood vessels, provided the renal arteries are not constricted, will increase the flow of urine, while if the blood pressure becomes very low, as in conditions of cardiac failure or shock there may be no excretion at all. Chemical changes in the blood plasma also modify the amount of urine excreted. Urea, dextrose, sodium chloride, and various salts are diuretic because they increase the specific gravity of the plasma and the blood then seeks water from the tissues or from the gastro-intestinal tract, and this increased amount of water in the blood soon causes diuresis. Caffeine is a diuretic because it soon dilates the blood vessels of the kidney, while digitalis is a diuretic in cardiac debility.

The flattened epithelial cells lining the capsules of the glomeruli or Malpighian bodies take water and salts from the blood and pass them into the beginning of the urinary tubules. The activity of the cells seems to depend upon the activity of the circulation through the capillaries of the Malpighian bodies, though they may be stimulated by some drug, such as caffeine. Sugar and albumin are also probably excreted through the glomeruli. The rodded cells in the convoluted tubules excrete urea, uric acid, creatinin, and certain salts such as sodium chloride, sulphates and phosphates, and with these enough water to keep the salts in solution. A change in blood pressure or anything that upsets the equilibrium of the circulation, whether functional or organic, climatic or nervous, will change the circulation in the kidnevs sufficiently to modify the urinary excretion. It is stated that the microscope will show a marked difference in some of the epithelial cells in the glandular portion of the kidney when these cells are in activity or at rest. These cells in activity show granules or grains of segregation (Renaut), and these aid chemically in picking toxins or salts out of the blood and excreting them into the urinary tubules. This would seem to be an internal secretion, so to speak, and preparations from these active glandular portions of the kidneys have been fed to patients whose kidneys are defective.

According to our present knowledge the glomeruli and the convoluted tubules represent the glandular portions of the kidney and each tubule may have alternating periods of activity and rest, while the other tubes of the kidney are probably excretory ducts-

It is quite probable that if for any reason the excretion or secretion from the glomeruli is abnormal, the secretion or excretion from the convoluted tubules below will also be disturbed, and if they are disturbed the first defect noticed is a diminished excretion of urea, while much disturbance of the glomeruli will allow a leakage of albumin.

According to Atwater, a normal adult at rest excretes in twentyfour hours, about a quart of water in the urine, about a quart by the lungs, about a pint by the skin, and about a half pint with the faeces, i. e., a total of five and one-half pints of water. If no water is ingested, the blood plasma soon has its specific gravity greatly increased, and in spite of taking what water it can from the tissues, its ability to act as a solvent to carry and to aid in the excretion of salts is greatly diminished. If water is not ingested and foods poor in water, especially proteids and nucleins, are taken, their oxidation to urea and uric acid makes the thirst of the blood for water greater and the ability of the blood to carry nutrition and excrete waste products still less. Hence a certain amount of water is absolutely necessary for proper excretion. On the other hand, if more water is ingested than can be excreted, the vessels become distended with blood of low specific gravity, and the heart labors to circulate this increased abnormal amount of fluid. If the heart and kidneys are competent, unless there is sufficient exertion to cause profuse sweating, the extra amount of water will soon be excreted by the kidneys. If the heart is debilitated or the kidneys insufficient, ædema and dropsy will occur. Also in this hydræmic condition of the blood the nutrition of the cells is interfered with as water is not absorbed from the stomach and intestines as it should be and therefore the nutriment is not properly digested nor properly absorbed and circulated.

Therapeutic conclusions are easy to draw, viz., that when the urine is diminished in amount and of high specific gravity, and the circulation is perfect, and the kidneys not badly defective, and there are no cedemas more water should be ingested. On the

other hand, in conditions of weakened circulation where there are cedemas and where there is serious kidney insufficiency, but little water should be ingested, and, for a short period, perhaps, very little. When the skin is dry and the surface tissues seem to shrivel, though large amounts of urine are passed by the kidneys, with the circulation good, and without cedemas, water should be allowed in large amounts.

It is, then, wrong to push water ingestion in cardiac weakness; it is wrong to push water in serious kidney defect; it is wrong to withhold water in diabetes; and the amount of water allowed in gout depends upon the condition of the heart and kidneys. Water should generally be given freely in high temperatures unless there are cedemas, as it helps to excrete the toxins caused by the disease. After chloroform and ether anæsthesia, especially if they have been prolonged, a high colon injection of physiologic saline solution should be given. This supplies water to the blood that has through perspiration or otherwise had its water reduced. It also acts as a diuretic and tends to prevent albuminuria from renal congestion due to the anesthetic. In acute nephritis water should be allowed in small amounts only, as it is badly excreted. In chronic nephritis with high blood pressure large amounts of water can do nothing but increase the blood pressure and put more strain upon the cardiac muscle. The same is true in arterio sclerosis. All of this is equally true of large amounts of milk or any other liquid.

Acute nephritis and chronic parenchymatous nephritis give so many evidences of their presence that the diagnosis is unmistakable. Chronic interstitial nephritis, however, begins so insidiously that we should try and foretell its probable development. Cardiac lesions which cause more or less passive congestion of the abdominal organs tend to cause nephritis, and the same is true of liver disturbance. We should take note of long continued intestinal indigestion which allows irritants to reach the kidneys as indicated by the appearance of indican in the urine, and these continued irritants of the kidneys can later cause chronic nephritis.

A little higher blood pressure, a little increased nervous irritability, and more frequent urination with a total increased amount of urine of a low specific gravity, are signals of warning. Soon the urine shows an occasional hyaline cast, then an intermittent trace of albumin, and the kidney irritation becomes positive. With this intestinal indigestion more toxins are produced, and, reaching the liver, interfere with its perfect metabolism. Less urea is formed and more uric acid and ammonium salts, and more ammonium carbamate is left in the blood, all to the disadvantage of the kidneys. If with these signs there are some joint disturbances, with or without chronic endarteritis, and later arteriosclerosis, the condition called gouty is present and the kidney resulting is the gouty kidney.

If the above set of signs and symptoms are allowed to persist, chronic nephritis will almost surely develop, and even if on repeated examinations of the urine albumin and casts are not found, we still do not know that the kidneys are perfect organs. The twenty-four hours' urine must be several times collected and examined as to the ability of the kidneys to excrete the various salts, and the results of these examinations associated with the condition of the circulation, skin, and digestive system may decide whether or not chronic interstitial nephritis is present.

It must be positively stated that the absence of albumin and casts from the urine in such cases is not a proof that interstitial nephritis is not present. An estimate of the nitrogen excreted in the urine in twenty-four hours seems to be the surest indicator of the kidneys' ability to functionate. If small amounts of urea and large amounts of ammonium compounds are excreted in the urine, i. e., the reverse of normal, the liver is at fault. If there is much indican and the sulphates are increased in the urine, there is intestinal disturbance and substances are getting into the blood which will sooner or later cause liver and kidney disease. If the phosphates are much increased, especially in urine passed hours after a meal, there is probably a good deal of nervous and cerebral disturbance, while in nephritis the phosphates are generally diminished. If the chlorides are greatly diminished as they are likely

to be in nephritis there will probably be cedema. After several such examinations of the twenty-four hours' urine have been made, while the patient is on a general mixed diet, it can be determined which article or class of foods, or particular salts he does not readily excrete, and such can be removed from his diet. Such examinations will also show what drugs he should not take.

With proper dietetic and hygienic care chronic interstitial nephritis may be postponed, and kidneys defective in parts, with the urine showing albumin and casts, can recuperate. As the whole kidney is often not symmetrically diseased, healthy portions of it can hypertrophy and do perfect work, while the diseased portions of the kidney either recuperate or atrophy and cease to pass abnormal urine. There is no known limit to the ability of the kidneys to regenerate. Hence a prognosis from the urine findings alone is difficult to make. Other things being equal, this repair of the kidneys is more likely to occur in younger persons than in older, but it is markedly seen at any age where for any reason one kidney must be extirpated or becomes locally diseased so that the other kidney does the work for the whole body, and the well kidney has been found to greatly hypertrophy to do this extra work.

As above stated, the presence of albumin in the urine indicatesdisturbances in the epithelium of the Malpighian bodies, but these glomeruli often show great tendency to recuperate; hence the intermittency of many albuminurias. If degeneration of the kidney cells does not affect the glomeruli there may be no albuminuria, while if the glomeruli are much affected the whole kidney is likely to be in trouble. Chronic interstitial nephritis affects the rest of the kidney more than it does the glomeruli.

We now recognize that a little albumin may occur in the urine without any pathologic cause. Severe muscular exercise, beginnings of acute infections, severe mental disturbance, temporary debility of the circulation, menstruation, skin irritations, severe chilling and cold baths may all allow albumin to appear in the urine without any kidney defect whatever.

It should not be forgotten that inflammation of the prostate will cause albumin to appear in the urine, and in chronic prostatitis this albumin may be constant. Hence before deciding that the albumin comes from the kidneys of a male patient, inflammation of this gland must be eliminated. Nucleo-albumin and serum-albumin must also be separated. They are often present together in acute or subacute nephritis, but nucleo-albumin is rarely present in chronic nephritis. Nucleo-albumin is also frequently present in otherwise normal urines with perfectly normal kidneys. It has been lately emphasized (Hastings, Med. Rec., July 7, 1906) that urines containing but small amounts of urine salts, especially sodium chloride, may contain albumin which is not shown by the ordinary tests. Hence to be positive that a given specimen of urine contains no albumin, the urine should be salted with sodium chloride before the ordinary tests are made.

We must draw the conclusion that the mere presence of albumin in the urine, and even of hyaline casts, after centrifuging should not reject an applicant for insurance, but should merely postpone him. Having eliminated by several observations a temporary congestion of the kidneys from chilling or from over-physical exercise, prostatitis, or other accidental cause, a continued trace of albumin certainly shows renal irritation, but not necessarily renal inflammation. Persistent renal albuminuria, however, probably indicates nephritis except in the rare cases of orthostatic albuminuria. It must also be acknowledged that frequently recurring renal irritation sufficient to cause renal albuminuria probably leads sooner or later to chronic nephritis. Tube casts can be present without albumin, but it is often the trace of albumin that starts the hunt for tube casts.

Wright and Ross (London Lancet, Vol. II, 1905, p. 1164) suggest the following method of determining whether an albuminuria is physiologic or is caused by renal disease. They administer from 40 to 60 grains of calcium lactate, which is supposed to increase the coagulability of the blood. If the albumin increases

after the administration of this salt, there is nephritis. If it does not increase, the kidneys are normal. I have not examined into the reliability of this test.

I think that we may declare that traces of albumin in the urine, in spite of the above exceptions, is never good physiology; that the term physiologic albuminuria is not a good one; that small amounts of albumin, or even traces in the urine show kidney weakness or kidney irritation. Kidney weakness, then, should be protected by the kind of diet and life that will use the kidneys the least strenuously; if kidney irritation, by such mental, physical, and physiologic rest as to remove the condition. In other words, an individual having such an albuminuria needs a proper diet and rest cure until he is over it, as continued irritation means future nephritis.

Centrifuged urines will often show hyaline and sometimes even granular casts in normal individuals with normal kidneys, and certainly to centrifuge a previously sedimented urine is unfair to the individual from the insurance standpoint. Hyaline casts may be formed in the convoluted tubules by hyaline degeneration or an albuminous exudate, or they may be formed from a little albumin leak from the glomeruli above. Councilman thinks that the granules in granular casts come from a disintegration of the epithelial cells.

Many of the same causes that produce transient albuminuria can cause casts to appear in the urine, as passive congestions, severe exercise, athletic tests, chillings, irritations from alcohol and from drugs. The cause being stopped, casts in such cases rapidly disappear.

Hyaline casts can occur during acute infection, in any bowel intoxication, in jaundice, and after anesthesia, and can very easily occur from any simple irritation after forty years of age. Though traces of albumin probably exude at the same time from the same conditions which cause these casts to form, it may not be sufficient to show in the urine. Persistent casts, however, even if only hyaline and even without albumin, are indicative of interstitial

nephritis, though the disease may not be progressive. We should say, as Osler so well puts it, that even an intermittent trace of albumin in the urine or more or less persistent hyaline casts are signals to "go slow." Hyaline casts do not probably long persist without finely granular casts being found, and later coarser granular casts begin to show more degenerative changes in the kidney structure. Epithelial casts show kidney congestion. It may be acute, or chronic, or simply passive hyperæmia caused by circulatory insufficiency. Depending upon the amount of congestion they may contain white and more or less red blood cells. Fatty casts seem to indicate that some part, at least, of the kidneys have been long in a pathologic condition.

We must conclude that our ability to diagnose the condition of the kidneys or prognose the future does not rest on the finding of albumin and casts in the urine. Serious nephritis may be present and repeated examinations show no casts and no albumin, although at any examination, a series having previously been negative, large amounts of albumin and all kinds of casts may suddenly appear without apparent cause. I have personally seen many cases bear out this statement. On the other hand, it is only persistent albuminurias and persistent finding of casts that shows there is nephritis. Intermittent findings or occasional findings may show only kidney irritation. With continuous finding of albumin and casts the actual condition of the kidneys can only be determined by the associated symptoms, viz.: by a diminished output of salts, a greatly diminished or greatly increased bulk of the urine the latter with low specific gravity, indigestions, headaches, circulatory disturbances, and eye symptoms.

The relationship of the solid excretion of the kidney to the diet must be determined before we decide the kidneys are insufficient, although they may be diseased. The scanty urine of heart disease or of acute fevers or of bowel sluggishness does not cause uræmia, although it will pile up toxins in the blood and cause auto-intoxication symptoms. It seems to me that there is an internal secretion of the kidneys.

According to Croftan (Jour. A. M. A., Jan. 6, 1906) when urea disappears from the urine in uræmia it also disappears from the blood, while ammonium salts are increased. This carries us back to the liver where urea is produced. When urea is injected into the blood experimentally it does not cause coma, but ammonium salts do. When, in a nephritis case uræmia is imminent as especially shown by the urea-nitrogen of the urine being greatly decreased, and the ammonia-nitrogen being greatly increased, our attention should be turned to the liver and not to the kidneys. and it may be the relief of the liver by saline purgatives that improves uræmic conditions. We recognize that it is often dangerous to administer morphine to a nephritic patient, and yet a large amount of this morphine is re-excreted into the stomach and never was or would be excreted by even healthy kidneys, so that the mere holding back of the morphine by the kidneys is not the whole reason for its intense action. On the other hand, we know that in liver mal-function morphine is badly tolerated.

The high arterial tension of nephritis, and especially of uræmia, is doubtless due to the toxins in the blood causing sufficient irritation to make the blood vessels contract. Many of these irritants are re-absorbed from the intestine in conditions of fermentation and putrefaction, one more reason for the proper cleansing of the bowel with cathartics and the prevention of further fermentation by a restricted diet. When constipation or mal-digestion is in evidence in kidney disease the liver quickly is more and more disturbed and its ability to produce urea is decreased, the ammonium salts increase, and uræmic symptoms are the result. Also, in this sluggish condition the bile is not properly liquid and more or less bilious congestion takes place. There are headaches from the bile irritation of the brain, the sclerotics and skin become yellowish, and the skin, endeavoring to excrete irritants from the blood due to the insufficiency of both liver and kidneys becomes irritated, itches, may show urticarial disturbances. and from the scratching eczematous conditions occur, and if not sufficient baths are taken and no massage is done the skin becomes dry and cannot do its normal excretory work, and more trouble and irritation is thrown upon the kidneys, and uræmia is soon the outcome.

The length of time, in uræmia, that the diet should be nothing but water, and hot baths should be taken, and saline purges given, depends entirely upon whether the symptoms become better or not; it may be twenty-four hours, it may by forty-eight; but if no improvement occurs in two days, the case is probably hopeless. If there is improvement the diet should be such that there is a minimum amount of uric acid formed and a minimum amount of urea, and again we are aiming at the liver function. Intestinal fermentation may be prevented by the administration of sodium glycocholate in half-gram doses, and perhaps no bowel antiseptic is safer, considering the kidney defect.

Cardiac tonics are rarely indicated when uræmia is pending or present. On the other hand, vaso-dilators, as nitroglycerine, are often of great value. Too great lowering of the blood pressure, however, in the chronic interstitial nephritis of old age should not be attempted, and would be pernicious if continued. The liquids and sodium chloride given should depend entirely upon the character of the circulation and whether or not there are cedemas.

Whether or not there is an internal secretion of the kidneys, I have certainly seen life prolonged in nephritis by feeding fresh kidneys. I have not had much results from the nephritic tablets. Thyroid extract certainly aids in preventing convulsions in uraemia, and is, I believe, the most efficient preventive of that symptom.

If there is severe pain, especially in the cardiac region, morphine must be administered though theoretically contra-indicated. If there is coma and other symptoms of cerebral pressure, spinal puncture may relieve them, but is rarely of any avail.

If we have positively seen a case of chronic nephritis progress gradually from bad to worse, I do not believe it justifiable to use superhuman efforts to prolong life for a day or two. On the other hand, in uræmia, when we are in doubt as to how far the pathology has proceeded, and in acute nephritis, we should do venesection in amount sufficient to decidedly lower the blood pressure. If the patient is debilitated and anæmic, this venesection should be immediately followed by saline transfusion.

In acute nephritis, and when uræmia is pending in chronic nephritis, and during uræmia, high colon washings with physiologic saline solution should be done several times a day, and as hot as can comfortably be borne. The temperature may be 110° F. with a continuous return flow. A rectal tube can be passed a short distance, and with the hips elevated the water will flow readily into the colon. This hot colon douche will often relieve kidney congestion. If there is no ædema, some of this solution should be left in the colon, and is one of the most efficient diuretics.

We may sum up the treatment of uræmia as absolute muscle rest; the withholding of all food, not even giving milk; administering very little water by the mouth even if there is no ædema, as the ability of the kidneys to excrete water, even, is often abolished; frequent colon irrigations of hot water, leaving some in the colon for absorption if the blood pressure is low and there is no ædema; the administration of thyroid; hot sponging of the skin; venesection in most cases, repeated if necessary, as it has been shown that an ounce of blood will remove more toxins than eight or nine times that of fluid faeces or than quarts of perspiration; and the administration of nitroglycerine if the pulse tension is high. If the uræmic period is passed and the kidneys again begin to secrete and excrete, the diet and life of the patient become of primary importance, but that is not the object of this paper to discuss.

#### DISCUSSION.

Dr. George Blumer (New Haven): Mr. President and Gentlemen of the Connecticut State Medical Society: Dr. Osborne's paper did not go particularly into the question of the diagnosis of kidney insufficiency and I will simply state that of the newer methods which are being recommended for the diagnosis of kidney insufficiency, none prove entirely satisfactory. The administration of methylene blue is not satisfactory.

Now as to the treatment of uramia, which is the subject mainly discussed in Dr. Osborne's paper:

The first question which we naturally ask ourselves before considering the treatment is: What is the cause of uræmia? When we attempt to answer that question we immediately find, by examining the literature of the subject, that we know very little about the cause of uræmia.

Uræmia is a toxemia of some sort, but what its nature is is practically unknown. We might imagine, of course, in the first place, that toxemia is due to the retention of salts, which should be excreted by the kidneys under normal conditions, although we are unable to produce in the lower animals by the introduction of the ordinary salts anything that is at all like uræmia, and, as a matter of fact, patients who have complete anuria from mechanical causes do not develop the symptoms which accompany Bright's disease. There is a certain fallacy, however, in the experimental investigation of this side of the question, as to the nature of the poisonous substances, as it is possible that the effects are due to the prolonged action of these substances. We cannot definitely exclude the assertion that uramia may be due to the retention of substances that should be excreted by the urine. There is evidence, however, that it is not the salts that produce uræmia but some organic substance, probably of the nature of albuminous substances, present in the blood, but just what it is we do not know. Whether it is a substance which should be excreted or whether it is something formed by the kidneys, is uncertain.

In fact, it is assumed by many that there is an internal secretion, but the actual evidence is very slight, almost nothing. We do have some evidence, of course, of the methods by which the poison is excreted. For example, we know in uræmia that the cerebral spinal fluid is five or six times more toxic than in normal individuals. Of course the symptoms of uræmia are of nervous origin and it is possible that the poisons, whatever they are, act upon the nervous system by being present in the cerebral fluid.

It sometimes happens that changes in the nervous system are more marked in the cortex of the brain than in the central ganglia. Then again we have evidence of stomach and intestinal disturbances, and that the poison is excreted to some extent by the intestines. In fact, some of the experimental work rather tends to show that in uræmia the skin takes up the functions of the kidneys to a very slight extent, if at all.

Now as to the treatment, although, as I say, we do not know really what the poisonous substances in uræmia are. The treatment, of course, naturally resolves itself, in the first place, into the prevention of the entrance of toxic substances into the body which may tend to increase the uræmic poison, and in the second place into their excretion, when present.

Certain kinds of food, when introduced, tend to increase the uræmic poison and we avoid especially animal foods and try to give the patient food which contains as small a quantity of extracts as possible. Milk has some objections, one being the fact that it easily ferments, the other being that it introduces large quantities of water into the system, which is undesirable. Then the second point of the treatment is the prevention, so far as possible, of the formation of the toxin in the body. We know that both manual and mental action increases the toxic substance in uræmia, and, for that reason, absolute rest is essential in the treatment of the acute stages. Then in the third place, what we endeavor to do is to aid nature in the excretion of the toxins already formed; for that we use purgatives and diuretics.

I do not intend to discuss all the different methods of getting rid of the poisons, as they are well known.

I want to speak of one or two points that have come up recently. In the first place in regard to purgatives, I do think it is necessary to use a certain amount of caution in regard to the use of magnesium salts; the magnesium salts are very commonly used in the treatment of uræmia. In the recent work of Meltzer he has shown that the magnesium in the magnesium salts may actually produce coma in the lower animals. I avoid the use of magnesium in cases of uræmia. There is a possibility that in using magnesium salts we may actually increase a patient's coma instead of relieving it. If we use purgatives at all in uræmia, I think we ought, until we have more light on the subject, to give up saline purgatives and use vegetable purgatives instead.

A most efficient treatment is bleeding, but the trouble with the profession at present is that they defer it too long and are apt to think that bleeding should only be used in cases of high arterial tension. The important object is not to reduce the arterial tension. The bleeding is to remove the toxin.

Hypodermoclysis is of value but should be avoided in cases of very high tension.

Now in regard to sweats. I think here again we need a word of caution. We remove comparatively little of the toxin by sweating. In fact, there are undoubted cases on record where uræmic patients have had severe convulsions immediately after a sweat. I do not mean that sweating be given up entirely, but it should certainly be used with more caution.

Then the question of lumbar puncture. This is a form of treatment of uræmia which has been advocated of late by the foreign writers. They base their advocacy of the lumbar puncture on the fact that they have shown that the cerebral spinal fluid is very much more toxic in uræmia and also on the fact that the nervous symptoms are the important symptoms in uræmia. I have not had sufficient personal opportunity to see whether or not lumbar puncture is desirable in all cases. The cases in

which it has appeared to have done the most good are in some instances of acute nephritis in children. Some cases recover very rapidly. There are a number of articles on lumbar puncture and, so far as I can make out, the puncture does very little good in chronic nephritis.

A word in regard to kidney solutions: While-it is true that, apparently, they seem to produce good results in some cases, there are many negative results, and it seems to me it is necessary to point out that there are present in kidney solutions substances which actually raise blood pressure. Then another point that might be taken into account in the use of kidney extracts is that we are using extracts made from the kidneys of an alien animal and it is always dangerous to introduce fluid from an alien animal into an animal of another species. If you introduce a kidney substance from a foreign species into an animal, it acts upon the kidneys and, for that reason, I think we should be exceedingly cautious about using any of these kidney extracts. The only other animal extract mentioned particularly by Dr. Osborne was thyroid extract. So far as my experience has gone it has had absolutely no effect in nephritis, though it is of value in eclampsia.

# Foreign Health Resorts.

FRANK TERRY BROOKS, M.D., Greenwich.

The value of general measures in therapeutics was never so much appreciated by both physician and patient as at the present time. Medicine alone is not the sine qua non. Tho' an important factor, it is usually but one of several, the combination of all of which produces the happiest results. Visits in recent years to celebrated foreign health resorts leave the personal impression that on the Continent decidedly more attention is given to the beneficial effects of climate, hydro-therapeutics, and diet than in our own country. Some idea of the extent to which these "cures" are employed may be obtained from the fact that in France alone there are over 1,000 health stations.

In talking with hydro-therapeutists the opinion was expressed that there reside in the natural mineral waters, qualities which even the expert chemist has not unearthed. The "Geheimnisse Natur" are not yet all revealed. Certain it is that remarkable benefits are often obtained from natural mineral waters, when artificial preparations have failed. A more perfect and easy assimilation of the inorganic salts (of great importance where the stomach is weak), nature's own influence upon the economy, possibly also some yet undiscovered electrical action upon the cellular structures,—all assist to the final result.

The baths of Tepletz, not far from Carlsbad, are a most interesting study in this particular. Astonishing cures are reported and yet upon analysis the waters are almost devoid of mineral ingredients.

As representative types of these climatic and water cures may be selected Carlsbad in the Bohemian Hills; Levico-Vetriolo in Southern Tyrol; Aix-Les-Bains in the French Savoy; and "beautiful" Nice on the Riviera.

The springs of Carlsbad and Aix-Les-Bains are Government properties, like the waters of the Arkansas Hot Springs; the springs at Levico-Vetriolo are owned by a rich syndicate, who have expended something like two million (2,000,000) reichmarks (\$500,000), in this respect resembling the Virginia Hot Springs in America and also in a decided similarity in location. Nice, on the other hand, is unlike any of the others. It is the Atlantic City and Lakewood for Europe, most fashionable, most gay, yet withal a wonderful climatic resort, and like Egypt is the Mecca of the invalid and traveler in the winter months.

Carlsbad, one of the most renowned health resorts in Europe, as we all know, is peculiarly situated. Winding along the valley of the Eger, with the Bohemian Hills on either side, we approach the City where the Tepl and Eger join. The most impressive view is the high chimneys of the many Bohemian glass and porcelain works, and even after leaving the central Bahnhof—the thought of a manufacturing city is foremost rather than of a celebrated watering place. But there is a sudden transformation. We drive down into the narrow valley of the Tepl. Now the colonnades of the springs, the parks, the large spring-houses, the Kurhaüse, the Kaiserbad, the many hotels and innumerable boarding houses, change the first impression and we realize that we are indeed in the heart of a great mineral Spa.

About 400 metres above the Baltic Sea, Carlsbad lies on both banks of the River Tepl, in a winding and a most narrow valley—so narrow that but one row of buildings is possible in some portions of the town, before the terrace arrangement begins. The hills rise to a height of several hundred feet and are covered with a luxurious growth of fir, pine, oak, and beech. These forests have a purifying influence upon the atmosphere and do much to counteract the otherwise rather depressing character of the climate, which resembles that of central Europe.

Carlsbad owes her springs to the volcanic revolutions of the tertiary period, when the older rock-masses were split up and reservoirs formed for the springs. The main basin is estimated to be about 8,000 feet below the surface. All the seventeen or more springs, of which the Sprudel is the best known, have thus a common origin and the differences in their composition,—at most, but little,— and temperatures are due to the differences in the distances traveled and time occupied by the water before reaching the surface.

All the springs have their exits near the swift flowing Tepl—the Sprudel within a few feet of it and the common basin lies, in part at least, under this surface river. From the therapeutic standpoint the temperature of the springs and, because of this, the relative amount of carbonic acid gas in solution, decides the selection of the spring for the individual case more than the slightly differing combinations of mineral ingredients. All the springs are alkali-salines.

The Sprudel spring spouts up its stream of mingled water and gas at a temperature of  $162\frac{1}{2}^{\circ}$  F. Sometimes higher, sometimes only a few feet above the basin (7-14 feet), this living pulse bounds forth in jets (40-60 a minute) and steam enveloped.

The reports of new sources of the Sprudel springs are due to Sprudel eruptions. Owing to the incrustations of these Hot Springs (called the Sprudel-Schale) the escape of the water is prevented and the time comes when the gas and water pressure are so great that an eruption takes place; a new channel being forced.

From 1617 to 1834, there were ten of these eruptions,—some of them doing considerable damage. Since 1834 the water chambers have been periodically widened and cleared of the shell deposits. Thus these explosions have been generally avoided.

Since the first analysis of the waters in 1789 the differences in their mineral compositions and temperatures have been but slight.

The Carlsbad Waters are clear, slightly saline, free from odor and seldom nauseating. They vary in temperature from 95 3/10° F., the Spital brunnen, to 162 5/10° F., the Sprudel. They are richest in the sulphates, carbonates and chlorides of soda (about 24, 12 1/2, and 10 grams to 10,000 respectively). As such they act upon the digestive system first, as alkalies, to neutralize the acid contents of the stomach and to dissolve the mucus. This is soon followed by 2d, the reaction of stimulation and secretion along the whole alimentary tract, including especially the duodenum, liver and bile ducts.

The water is taken by preference in the early morning in doses of from two to six glasses, sipped slowly and allowing from fifteen to thirty minutes between each glass. At times the daily dose is divided,—part being taken in the morning,—part before dinner or supper.

The life at Carlsbad is unique. A native population of 15,000 or 16,000; a tourist population in a single season of 100,000,—including the wealth and aristocracy of the world, besides the patients taking the cure, about 50,000 each year. In 1900 about 23,000 Americans were registered as patients.

At six o'clock in the morning the throng begins to assemble along the Alte Wiese on their way to the different springs. The bands play from 7 to 8 o'clock.

After taking the water the crowd scatters,—hundreds of them with their drinking cup strapped over their shoulder, carrying little pink paper packages containing fresh rolls, zwiebach, schenken and wurtzels. They walk leisurely along to one of the numerous open air cafés where coffee, tea or milk, as the order may be, is served. Following the frühstuck the morning is quickly and quietly passed, always in the open air if possible. The baths of the Sprudel water are usually prescribed in the morning. They vary according to individual indications,— the Sprudel lye or soap is added to one, plain or sea salt to another; oil of pine needles or bran to another, and so on. Dinner is always at midday.

The stories told of the Draconic Carlsbad diet are exaggerated. The Doctors Myers informed me (and by the way there are over 200 Physicians in practice in Carlsbad in the season) that the Curgemässe Speisen is adapted to the individual and in general is simply limited to sensible nourishing and easily digestible foods. Wines may or may not be allowed, so also smoking. The walks on the hillsides with picturesque views and frequent resting places, the Kaiser and Stadt Parks, where there is often music, the attractive shops, — all help to congenially pass the day and divert the mind.

A simple supper is soon followed by retirement and a really great city is early at rest.

To describe all the bath and spring houses would far exceed limits but the grand Muhlbruennen Colonnade and the Sprudel-halle must be mentioned and a word must be said of the Kaiserbad,— a palatial structure, costing a half million dollars and perfect in its equipment. Here are given all kinds of baths with the latest appliances. Moor baths with the peat rich in iron from the moor-fields of Franzenbad, electric light baths, CO2baths, hot and cold showers, cabinet baths. In fact, the establishment is regarded as the most complete in the world. A Zander Institute for the Swedish Hygienic Gymnastics and massage,— active and passive,— is an important addition and Doctor Tyrnauer who had this department in charge has made many cures from this method of treatment.

Local fomentations of Peat moss, hot dry air baths, massage and douches are much employed.

The yield of the sprudel springs is enormous — 2,000 litres per minute. 220,000 pounds of the salts were crystalized in 1900, and there were supplied in this same year in the four chief bath establishments (the Curhaus, Kaiserbad, Neubad and Sprudelbad) 327,500 baths (of which 14,000 were taken by visiting physicians, who are honorary guests of the Stadt). In addition to the salts, 1,979,000 litres of the Sprudel Waters were bottled and exported.

Nothing could more convincingly prove the value of the Carlsbad treatment in the eyes of the world than this statement of the amount of waters and salts exported and the truly remarkable yearly immigration to this foremost of European Spas.

The Carlsbad season extends from April 15 to September 15, but July and August are the two most popular months,— the tide of visitors attaining the maximum, as with the regularity of a natural law between July 22d and 25th.

The cost of a season varies with the tastes and purse of the individual. A full "cure" may be taken most reasonably or most expensively. For the indigent, charitable means are afforded and the municipality is most liberal to thousands of sufferers of all nations. There are several hospitals reserved for the worthy poor and those of restricted means. Nearly 45,000 free baths were given in 1900.

The general water supply is brought from mountain springs and every effort is made to maintain the City along the latest sanitary and hygienic lines.

The classes of cases treated in Carlsbad are, in general, those involving an impairment of the digestive system:—

- 1. Diseases of the liver and gall-ducts.
- Catarrhal conditions of the duodenum especially from abdominal plethora.
- 3. Diseases of the stomach and intestines, splenic enlargements.
- 4. Diseases of the kidneys and urinary organs; hypertrophy and chronic hyperæmia of the prostate.
- 5. Faulty metabolism, as causing gout, rheumatism, general adiposity and diabetes mellitus.
- 6. Diseases of the Uterus, depending upon abdominal plethora.

The average duration of the "Carlsbad Cure" is about four weeks, but many patients are sent to higher elevations and more tonic climatic stations in the Schwartz-walt for the "after cure."

### LEVICO-VETRIOLO.

The waters of Levico-Vetriolo are among the most interesting in all Europe, for of the myriad of mineral springs on the Continent only 3 are arseno-ferruginous. Of these, Levico and Roncegno are from the same range of mountains, but several miles apart, and the third is in Bosnia—strangely enough, all are in Austria. At Roncegno there is also a Curhaus and bottling establishment, and the waters are widely known throughout Europe—comparatively unknown in America.

The town of Levico, founded upon the site of the old Roman town, Lævus Viscus, is most beautifully situated. Near the famous group of the Brenta dolomites in Southern Tyrol, it lies in the town of Trentin in the heart of the Valsuguana valley—one of the most picturesque regions in the Austrian Alps. Along the gentle slope of the base of Monte Fronte, is scattered the little village and nearby, yet away from the immediate encroachment of the town, is the new Curhaus for the water treatment. Directly back of the Curhaus rises the mountain, whence from a height of 1500 metres above the Adriatic; 1,000 metres above the valley is the fons et origo of the heilquellen; two springs, the "Stark" and the "Schwach." The legend of the two grottoes is appropriately romantic:—

Fravate, the good goblin of the Valsuguana mountains sent his three sons, Cupri, Sidero, and Cobaldo, (Copper, Iron and Arsenic) to do good among men, but instead, they spread innumerable ills in the world. In punishment they were exiled to Monte Fronte where they weep eternally, repentant of their crimes. The stronger spring represents the tears of these brothers; the weaker the tears of their sister, Arcia. Thus was the conscience of Fravate quieted, for the tears of his children serve to cure humanity's ills.

The mountains which surround the plain are often snow covered, while in the valley itself, it is uncomfortably warm in the sun. From this, it follows that there is rapid radiation,—a constant change of pure, ozonated air. The large majority of

days are pleasant. The air is dry and balmy, rather mild than severe. All this has its bearing upon the treatment. The beautiful views are restful to over-wrought nerves, the air is tonic, and sleep-inducing, the change from usual environment is complete, mind and body are at rest—all of which tend to stimulate the reparative processes and to give nature an opportunity to build up her exhausted forces. When we add to these climatic influences, wholesome diet, the natural waters, rich in arsenic and iron,—the two inorganic builders of metabolism,—the baths and douches, with massage and Swedish exercises, a strong array is found to combat morbid processes and to bring new life to the health seeker.

The mineral springs were discovered about the beginning of the nineteenth century. The waters have been employed more or less for the last sixty years, but in the past twenty years have come rapidly into use. Now the Curordt is frequented by all nations,—Italians, Egyptians, people of the South, during July and August; Germans, Russians, Austrians, English and Americans, Northerners, in spring and fall,—in this particular also resembling the American Spa, Virginia Hot Springs.

The waters from the springs are delivered from the Grottoes at the rate of eleven quarts per minute from the "Stark" and twenty-two quarts per minute from the "Schwach" spring. Both are clear, colorless, inodorous, but of ferruginous taste. The "Stark" spring contains the arsenic element and so is of the more importance. In its analysis are found to 10,000 grams of the water, 46.027 grams of iron (ferrous) sulphate and 0.060 grams arsenic anhydride. This represents to a 1/2 oz. of the water approximately 1/70 of a grain of arsenic anhydride and 1 grain, plus, of ferrous sulphate. Hence unlike ordinary mineral waters, these springs are practically strong mineral solutions.

. In these iron-arsenic waters, salts of nickel and cobalt are also present. They are aids in their quieting influences upon the nervous system and have anti-fermentative qualities.

Adapting the treatment of course to the individual, a general statement of the daily routine is this,—a simple dejeuner, served either in room or at table consisting of coffee or tea, if allowed, with cream, hot milk, rolls and eggs. Then comes, by preference, a short walk in the air, followed by the bath. The baths are given in the morning, when possible, and vary in temperature from 27° to 29° R., in duration from ten to thirty minutes.

Though all varieties of haths are given (douche, steam, electric, moor, etc.), the tub is the most usual. This is filled with mineral water, 1/3 to 1/2 diluted with pure spring water. The Badgaste is completely submerged except his head. He is instructed to maintain a gentle, but continuous active massage while in the water. During the bath, the mineral water which is transparent, but of an iron hue at the beginning, gradually becomes opaque and decidedly darker - precipitating a marked deposit upon the sides and bottom of the tub, from the oxidation of the mineral salts in their action upon the skin and from the air. The strength of the water is so great that the skin is apt to become tender and the use of a soothing oil is required. In our own country the waters of Mt. Clemens have a similar action, due however in this case to sulphur compounds. The bath finished, the attendant throws a hot bath sheet over the patient and energetically rubs the whole person, the patient himself meanwhile assisting to produce quick reaction. Unless too fatigued a walk for a short time in the air is now recommended, followed by a rest of from 1/2 to 1 hour. At times the hot bath produces a temporary relaxation, when rest immediately after the bath is desirable with some simple food or stimulant, and the walk delayed until later. The native Tyrolean red wines are regarded as excellent blood-elaborants and are often prescribed in considerable quantity for the anæmic patient. Thus the morning has passed. Dinner is always in the middle of the day. After it, a rest, then another "air-bath." The rule seemed to be to keep in the "luft" as much as possible - sauntering slowly, so as not to become over-fatigued.

The walks towards the mountains where the air is the most tonic are especially commended.

The monotony of the routine is broken by the inspiring mountain drives, the wonderful vineyards, music furnished by the Military Band of the Stadt, boating and fishing on the neighboring lakes and the usual summer sports if inclination and strength permit. In the hottest summer months, the Alpine Curordt of Vetriolo provides a cool station, where the very dry air permits remaining out of doors until late in the evening and the baths are taken at the "fountain-head."

The internal exhibition of the iron-arsenic water varies naturally with the case in hand but, in general, begins with 1/2 oz. of the "stark" water twice daily with or just after meals, diluted, increasing every third day by ½ oz. until about 3 ož. a day are ingested, now watching for symptoms and gradually decreasing the dose. The water does not seem to be constipating. Cases of arsenic poisoning are not expected under this method of exhibition and iron-headaches and symptoms of over-stimulation, if produced, are soon over by resting from treatment.

The springs themselves are analytically examined at stated intervals and thus all danger from variations in the strength of these powerful waters is avoided. In fact, the analyses are found to be remarkably similar.

The classes of cases most benefited by these springs include those which involve an impairment of the hæmatogenetic system:

- (a) All anæmias, primary and secondary, especially those of malarial origin where quinine has failed; chlorosis, leukæmia, pseudo-leukæmia.
- (b) Scrofuloses and lymphomatous diatheses and even the malignant tumors.
  - (c) Late syphilitic manifestations.
- (d) Neurotic conditions,—as neurasthenia, hysteria, hypochondria, impotence, chorea, epilepsy, migraine, gastralgia, Basedow's disease, locomotor ataxia, peripheral nerve involvements, etc.

- (e) Skin diseases, as eczemas, acne, ichthyosis, psoriasis, etc.
- (f) Certain gynecological conditions, as amenorrhæa, endometritis, etc.
- (g) Constitutional dyschrasias, as rheumatism of anæmic origin.
  - (h) Dyspepsias.

The "cure" generally comprises twenty-one baths, but varies with the individual case.

The arsenic waters are recommended to be continued in small doses for some time after the formal régime.

SURGICAL PAPERS.



## Tumors of the Cæcum.

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Mr. President and Gentlemen of the State Medical Society:— My excuse for presenting this subject is the fact that tumors of the cæcum are not infrequently diagnosed as appendicitis, and the operator finds himself unexpectedly facing an operation for which he is unprepared.

The literature upon this subject is meagre; neither has it been frequently discussed at medical meetings. Isolated cases of operations for removal of tumors of the cæcum are scattered through the literature. H. Kraussold (1) in April, 1889, reported a fatal case. The first successful operation for removal of the cæcum was reported by Maydl (2) in 1883.

The first article on this subject in the English language, according to Kelly, was by W. S. McGill in 1894. McGill (3) collected in all 104 operations for tumors in the ileo-cæcal region.

In 1887, Dr. William H. Carmalt of New Haven, performed the operation of removal of the cæcum and reported it to the Connecticut State Medical Society. The report was published in the International Clinics for October, 1891, p. 113.

Dr. John B. Boucher of Hartford, Conn., reported a successful case of removal of the cæcum for malignant disease, before the Hartford Medical Society in 1903. This patient is still living.

Charles G. Cumston and Albert Vander Veer (4) in a monograph published in 1902, on symptoms, diagnosis and treatment of carcinoma of the cæcum, collected forty-two cases, later publishing an addendum of twenty additional cases.

J. Shelton Horsley (5) reported a case of excision of part of the ileum and all of the cæcum and ascending colon in 1904. Dr. Horsley recommended an end to end anastomosis. His patient died shortly after the operation which was tedious and prolonged, but his paper brought out a discussion, Dr. A. J. Ochsner among others participating.

Ochsner (6) said, "No surgeon has a very large personal experience in excision of the cæcum, ascending colon and ileum, and for this reason the subject has never been thoroughly discussed before this section, and is one which should be discussed because the success of the operation depends on the recognition of several simple principles." Dr. Ochsner's choice of anastomosis will be referred to later.

Scudder (7) in 1904, reported a case of resection of the cæcum for benign growth upon a boy of nineteen, with recovery, and described the technique.

Billington (9) in 1906, reported a case of tumor of the ascending colon.

Plumer (10) reported a case of colloid carcinoma of the cæcum.

Broome (II) wrote on the present position of surgery of carcinoma of the cæcum, reporting four cases. I mention this contribution to literature in way of comparison with others of more hopeful tenor.

Broome operated upon four cases. Upon one a colotomy was performed which lived; upon the remaining three no operation was performed after the exploratory revealed the true conditions. All of these three patients succumbed later to the disease.

F. H. Wiggin 1904 (12) reported a case of successful resection of the cæcum.

From Kelly (13) we learn that the following have written upon the subject.

Czerny (14) in 1890; König (15) in 1890; Kocher (16) in 1891; Sachs (17) in 1892; Körte (18) in 1895; Hofmeister (19) in 1896; Conrath (20) in 1898.

It is my purpose to emphasize the importance of the surgeon's being ready and equipped to operate upon cæcal tumors and to rehearse the technique of the operation, discussing the various methods of anastomosis which are recommended in an endeavor to determine which is the best of these procedures.

Let us briefly consider the anatomy and physiology of the organ.

#### ANATOMY.

The cæcum or head of the colon is the terminal expansion of that intestine lying below the junction of the ileum. In herbivorous animals it is of great size, but in man and the carnivora it is rudimentary. In the adult man, dimensions average 6 cm. in length and 7 cm. in width.

Woolsey (21) divides the shape of the cæcum into four types. First — The fetal or infantile type which is conical with the root of the appendix at the small end of the cone, where the longitudinal bands are about equidistant. This persists in about 2% of cases in adults.

Second — The appendix still comes from the lower end at the junction of the three bands, but on either side of it the cæcum is expanded into two equal sacculi. This type occurs in the adult in 3% of cases.

Third — The third is the normal form occurring in man in 90% of cases. In this type the right sacculus and the anterior wall have outgrown the left side so that they form the lower end of the cæcum, while the root of the appendix, to which converge the longitudinal bands, has been displaced upward, inward and backward 2 cm. below the entrance of the ileum.

Fourth — This type, comprising 4 or 5% of cases, is an exaggeration of type three, in which the root of the appendix is displaced to the inferior ileo-cæcal angle by the atrophy of the left sacculus.

In the fetus after the second month, the cæcum descends from its original position, the region of the umbilicus, and enters the right ileac fossa. Deaver (22) claims that the non-descent of the cæcum is less frequent than is generally supposed. When the cæcum is distended it occupies the greater portion of the right ileac fossa, but is directly under the abdominal wall. If not distended it may be covered by the small intestine. It rests upon the psoas muscle superior to the outer half of Poupart's ligament. Abnormally, the cæcum may be found to the left of the median line, or it may be dislocated inferiorly and become engaged in either a right or left inguinal or femoral hernia.

The mobility of the cæcum is governed by the distance between its distal end and the reflection of the peritoneum posteriorly from the colon, and upon the presence of an ascending meso-colon. In direction it is nearly vertical, tending slightly toward the median line as it descends.

The cæcum is completely covered by peritoneum. The peritoneum is reflected from the ascending colon on to the ileac fossa, so that the posterior surface of the cæcum is not in contact with the sub-peritoneal tissue of the ileac fossa.

Its arterial supply is the ileo-colic, a branch of the superior mesenteric. The external ileac artery, covered by peritoneum, passes downwards and outwards a short distance below the distal end of the cæcum and is always felt pulsating strongly when diligent search is being made for the appendix and cæcum.

The veins are branches of the superior mesenteric which accompany the artery, the nerve supply being the superior mesenteric plexus of the sympathetic nerves.

The lymphatics are very abundant at the ileo-cæcal junction, as they are at the proximal end of the small intestine; namely,—the duodenum near the pylorus. They with their associated glands occupy the space between the two layers of mesentery. The glands vary from the size of a pea to that of a small almond. They occur less frequently along the course of the ascending colon, the smallest number being found in the transverse colon.

The ileo-cæcal valve extends into the lumen of the colon at the upper border of its junction with the ileum and prevents

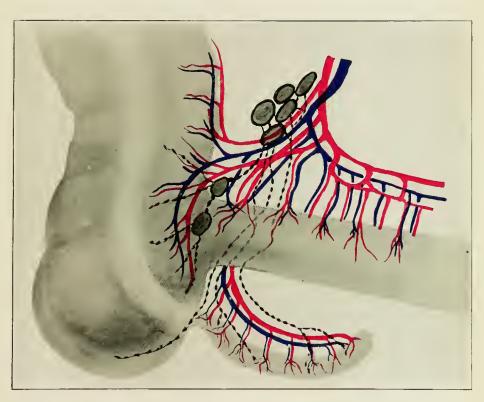


FIG 1 Vascular supply of the Cæcum. (Aitken after Kelley.)



regurgitation from colon to ileum. A smaller valve at the junction of the appendix veriformis with the cæcum, endeavors to guard this entrance from regurgitation, but frequently fails.

### PHYSIOLOGY.

The physiological purpose of the cæcum is that of a containing organ in which substances but partially digested, mingled with the secretion of the small intestine, are retained for a greater or longer time while the absorption is in progress, the substances being churned and mixed, aided by the secretion of the intestinal mucosa during their stay within the cæcum.

Kelly, quoting from Grohe says, "Among those animals which have a mixed diet, such as rodents, apes and man, a part of the cæcum undergoes a more or less marked retrogressive change, so that it remains as a thin, wormlike process attached to the otherwise well developed cæcal pouch. This condition points to a time when the appendix and cæcum were of the same size, a retrogression having taken place, due to changed nutritive conditions. That this time does not lie very far back from man is indicated by the fact that the entire blind pouch of the fetus and new born possesses a relatively large size to that of the adult."

### TUMORS.

Tumors of the cæcum may be benign, malignant or tubercular. These tumors include a wide range of pathology and may be either adenoma, lipoma, fibroma, myoma, myxoma, tubercular, angioma and teratoma, in addition to which there are varying combinations of benign and malignant neoplasms, as the adenoma, fibro and myo sarcoma.

There may also occur subacute enlargement of the cæcum from inflammatory exudate, and suddenly occurring masses involving cæcum and ileum from intussusception. Aside from these inflammatory conditions, the benign tumors are uncommon.

The adenomata originate in the glands of Lieberkuhn and are similar to them in structure. They may or may not have a pedicle, they vary in size, although usually small, and may occur singly or may be multiple. They may occur at any age, but most frequently in young life. Adenomata are the most common of benign tumors.

Lipomata spring from the submucosa and are polypoid or sessile in shape. They are clinically important as they frequently cause invagination of the intestine.

Myomata, as their name implies, spring from the muscular layer. They may extend toward the serosa or toward the calibre of the intestine. Fortunately, when they grow in the latter direction they are smaller than when progressing outward. In any case they may impinge upon the calibre of the intestine and may cause ulceration and bleeding.

Lipomata and fibromata are quite rare.

Bland Sutton (23) in 1900, reported a lipomata removed from the colon just above the cæcum which weighed 2 ounces.

Cysts are rarely found on the cæcum, or on other portions of the intestine. Cystic tumors of the intestine may contain gas, such being of microbic origin.

Tuberculosis of the cæcum has, until recently, received more marked attention in Europe, especially in Germany and France.

Conrath, quoted by Douglas, reported eighty-five cases in 1898.

Nicholas Senn (24) has written upon the subject; also Crowder (25) has a complete article on cæcal tuberculosis.

The tubercular infection of the cæcum may be either primary or secondary. The primary variety is extremely rare. The mucus coat is the focus of chronic ulceration. The bowel wall becomes thickened, indurated and irregular. The calibre at the ileo-cæcal valve becomes contracted from cicatrices. The disease extends upward along the colon, rather than into the ileum. Secondary tubercular infection of the intestine occurs more frequently in young life.

Of the malignant tumors of the cæcum, carcinoma is by far more common than sarcoma.

Cancer of the alimentary tract is less unusual than we have been led to believe from earlier writings. Its most frequent seat is the pylorus. Next in frequency the sigmoid flexure and rectum and next the cæcum.

From Ewald's (26) statistics we learn that out of 1148 cases of carcinoma of the intestinal canal, 874 occurred in the rectum; 148 in the colon; 64 in the cæcum and appendix: 26 in the ileum; 19 in the duodenum; 17 in the jejunum.

Carcinoma of the cæcum, as elsewhere, usually occurs during the ages from forty to sixty, although there are marked exceptions to this on the side of earlier life.

Cases of carcinoma of the intestine have been reported at twelve to thirteen years. It is usually primary and may extend by contiguity. There occur the usual varieties that are found in other tissues.

Sarcoma of the cæcum may occur at any age, but it is a disease of young and middle rather than advanced life. Curiously, it occurs twice as frequently in the female as in the male.

These tumors often attain a large size. A large section of bowel may become involved as well as contiguous organs.

Metastases are common. It is not as apt to cause stenosis of the bowel as carcinoma, although it grows more rapidly.

## SYMPTOMS AND DIAGNOSIS OF TUMORS OF THE CAECUM.

The symptoms of the various growths of the cæcum are tumor in the right ileo cæcal region, more or less movable if benign and stationary if malignant; pain which varies much in character and degree and may be wanting until stenosis and pressure has developed to occasion it; increasing constipation with resulting distension, finally leading in unrelieved cases to obstipation or complete obstruction. Occasionally the constipation may alternate with

diarrhœa. Vomiting is not so constant a symptom as with tumors higher up in the intestinal canal. The disease may indeed reach an advanced stage before either nausea or vomiting occurs.

Visible peristalsis, where the tumor has produced decided stenosis, is frequently present and highly diagnostic.

Tympany: Distension is present to a greater or less extent in most cases before stenosis is complete. A persistently tympanitic abdomen with colicky pain and inability to expel flatus is an important symptom.

Character of the Stools: Blood, either macroscopic or microscopic, occurs at some stage of the disease in the majority of malignant growths of the cæcum. It may or may not be clotted and it may be dark or bright red. Pus and mucus may accompany the blood.

Radiographs, taken after the bowel has been injected with an emulsion of subnitrate of bismuth, affords a novel means of locating the obstructing tumor. I am able to present three skiagraph plates which have recently been made in a case of increasing obstipation, apparently showing partial obstruction at the hepatic flevure of the colon.

Blood Examinations: These examinations are an aid in determining whether a cæcal tumor is of inflammatory origin or a new growth. In the former there is hyperleucocytosis with increased neutrophiles, while in the latter, if the tumor is malignant, there is increasing secondary anemia.

Examination of the Urine: Examination of the urine for indican aids in estimating the amount of copremia. A slowly increasing cachexia, accompanied by loss of weight, in connection with abdominal symptoms, should at once suggest the possibility of malignant growth.

Distension of the colon with air carried through a rectal tube may aid in determining the location of the growth.

Pulse and Temperature: The pulse is not significant. The temperature is variable in the majority of cases as the disease progresses. In malignancy and tuberculosis there occurs a pretty

constant afternoon rise of temperature from 100 to 102. It is not always detected by mouth, as the tongue may be dry. The rectal or vaginal temperature should always be taken.

Family and personal histories are important additions to the symptom complex. There is the same hereditary predisposition to malignant growths in this region as in other parts of the body.

The personal history should include a knowledge of the patient's previous illnesses, such as typhoid, syphilis, dysentery and the receipt of trauma.

Differential Diagnosis: Differential diagnosis between tumors of the cæcum and appendix may be difficult. In the majority of cases the slow growth of the tumor suggests at once a tumor rather than an acute inflammatory process, but as with other tumors the attention of the patient and of the physician may not be called to the growth until it has assumed decided proportions.

The first time that the tumor is noticed may be in connection with an attack of acute obstipation or obstruction. The exudate or abscess wall of an appendicitis is usually more tender, there is more muscular rigidity, there is more pain upon motion and usually more constitutional disturbance as well as increased leucocytosis already referred to.

Psoas abscess may be confused with tumor of the cæcum.

Evidences of a pus collection, such as constitutional symptoms and blood changes, accompanied by symptoms of vertebral or hip-joint disease, would lead us to think of psoas abscess.

Abscesses and tumors of the abdominal wall are to be distinguished from tumors of the cæcum. With them there is an absence of intestinal symptoms, frequently a movement of the growth with the abdominal walls and the evident superficial character of the swelling as compared with a deeper intestinal tumor.

Impacted Feces: Before committing ourselves to a diagnosis of cæcal tumor, one should be sure that the bowels and bladder have been recently evacuated. For this reason it is not always possible to make a careful diagnosis at one visit. One or two days

preparation of the patient may be required to have the intestinal canal free from contents. Impacted feces are more yielding as a rule, not tender and are not accompanied by constitutional symptoms.

Tuberculosis of the Cæcum: These patients frequently will exhibit some other tuberculous lesion. Their average age is between twenty and thirty. They are usually delicate and hectic. Diarrhea is more frequent than constipation. The tumor is usually nodular and movable. A tympanitic note is obtained on percussion. The inguinal and other glands are usually enlarged. The stools rarely contain blood.

In Conrath's series previously referred to, out of 85 cases fluid was found in but 5.

Treatment: The treatment of all tumors of the cæcum, except those due to acute inflammatory invasion or impacted contents, is surgical.

When it has been determined by as thorough and scientific a diagnosis as is possible to make that there exists a growth, either malignant, benign or tubercular, which is encroaching upon the calibre of the intestine and furnishing symptoms of progressive interference, barring prohibitive contra-indications, operation is called for. Here, as in other portions of the body, the earlier the malignancy is removed, the better the chances of success.

It is the surgeon's duty to explain to the patient and family that operations for cæcal tumors may be lengthy and serious and that they are undertaken with a full sense of grave responsibility in the hope of saving life or at least prolonging it. It should also be clearly stated that a radical operation may not be possible and that one of the palliative procedures may he all that can be accomplished. With this thorough understanding the surgeon undertakes his work with a lessened weight of anxiety.

The patient should be gotten into the best possible condition to withstand the ordeal, and after the usual preparation for an abdominal section, with ether skillfully administered, a three to five inch oblique incision is made through the right rectus muscle or in the semi-lunar line. Then must the surgeon study with his finger tips the character and extent of the growth. His operative experience and his knowledge of surgical pathology will often be put to a severe test.

The other portions of the abdomen must also be palpated in search of concomitant diseases or metastases. Then retraction should be practiced and ocular inspection be made. It may not be possible to determine the nature of the growth, nor is this always necessary in concluding what operative course to pursue.

Discussions on this subject, which have gotten no further than to deal with the technique for anastomosis, have touched upon but one phase of a number of important ones in this connection, for in the majority of instances it may not be feasible or possible to completely remove the growth.

There are other important procedures to be considered.

First — There is that class of cases where it is at once apparent that a radical operation cannot be performed, either because of its extensive character from dense and numerous attachments, or because of the critical condition of the patient. It must be determined in such a case if anything can be accomplished and if so whether that should be an ileostomy, an ileocolostomy, segregating or short-circuiting the growth, or whether occlusion, unilateral or bilateral, should be performed.

Second — If it is decided that the radical operation is called for, a definite plan of procedure, one with which the surgeon has familiarized himself before undertaking it upon the living subject, is settled upon. This includes the following steps.

Carefully protecting the abdominal cavity with gauze packing; the ligation of the mesenteric vessels; the separation and ligation of adherent omentum; the freeing of the ascending colon from the posterior abdominal wall by incising the parietal peritoneum to the outside of the intestine; the separation of adhesions to the fascia of the psoas and ileacus muscles; a double clamping of the intestine on either side of the growth at right angles upon the

colon and obliquely upon the ileum; then the bowel is divided between the clamps, and with its V shaped section of mesentery and enlarged glands is removed.

Care must be taken to avoid injuring the ureter and the duodenum. The ureter crosses the psoas muscle obliquely and is loosely connected with the muscle, but intimately so with the external surface of the peritoneum. The duodenum may be found lying underneath the ascending colon.

Anastomosis: The ends of the incised intestines are now carefully cleansed with sterile salt solution, and whatever form of anastomosis is selected is commenced.

Upon this point operators differ. The quickest is probably the end to end anastomosis or the joining of the end of the colon to the end of ileum.

The method of Shelton Horsley, whose communication has been previously referred to, consists in enlarging the calibre of the intestines at the point of anastomosis by clamping and cutting away the crescentic margin as the suture progresses.

In one out of my three cases of resection of the cæcum, I had no difficulty in performing this end to end anastomosis, overcoming the inequality of the intestine to be anastomosed by incising the ileum diagonally and by narrowing slightly the calibre of the colon.

The general objection to this end to end anastomosis is the possibility of stricture of the ileum.

The end to side anastomosis or the joining of the end of the ileum with some portion of the colon, having closed the open end of the colon by a purse string suture and inversion, is a common method and imitates the anatomical right angle junction.

Two of my cases were performed in this way; one with Murphy button and one with suture.

The side to side anastomosis, closing the ends of both intestines, is a somewhat longer procedure, but overcomes the objection of possible stenosis, as the lateral openings can be made as long as desired.

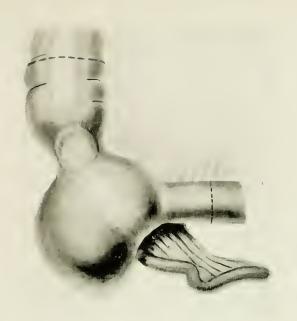


FIG. 2. The Caccum, Appendix, Ascending Colon and Heum with dotted lines showing point of section. Tumor indicated in Caccum (Aitken after Kelly.)



Fig. 3. Caecum resected. Heum anastomosed to Colon with side to end anastomosis. (Aitken after Kelly.)



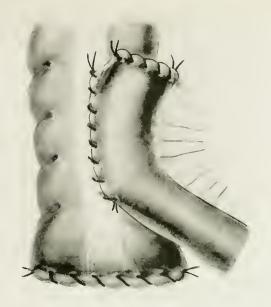


Fig. 4. Caccum resected. The end of Caccum closed with two layers of sutures. The Heum anastomosed to colon by lateral anastomosis, the end of Heum being closed with two layers of sutures. (Aitken after Kelly.)



Fig Caccinn resected. Colon anastomosed to Heum obliquely. Dotted line indicating the meision of the parietal Peritonenm to the outer side of Intestine (Aitken after Kelly)



The expressions from the following prominent surgeons upon this point are of interest.

Moynihan (27) says, "This method of lateral anastomosis which I feel disposed to adopt as an almost unvaried procedure in the future, after resection of the cæcum, has advantages over the end to end suture. The ileum is freely movable, can with ease be placed in apposition with any part of the ascending or transverse colon, the surfaces united are everywhere clad with peritoneum and there can be no anxiety as to the security and permanency of their apposition." The following are extracts from personal letters received by the writer:

Dr. A. J. Ochsner says, "My choice of operation for the removal of cæcum for neoplasms is as follows: I clamp the ileum double, cut between clamps, invert the distal end of the proximal portion of the ileum and close it with sutures. I do the same thing for the colon at least six inches above the neoplasm, then I make a side to side anastomosis by means of Moynihan's clamps about six inches from the end of each of these intestines.

"I am careful to avoid tension and make the anastomosis opening about 1/2 inch in length. I then carefully clamp the mesentery of the remaining portion of the ileum, also the mesentery of the cæcum if there is one, and otherwise the peritoneal attachment, and in doing this I am careful not to injure the duodenum which is likely to project underneath the ascending colon. I am very careful not to injure the ureter.

"The operation progresses step by step until the cæcum together with the tumor and six inches of intestine both have been removed, then I cover the bare surface with the peritoneum and close the abdominal opening.

"The patient receives rectal feeding for 10 days and an abundance of water by mouth. The operation is relatively simple and comparatively safe."

Dr. John B. Deaver says, "I make a resection of the cæcum by dividing the ileum and ascending colon, purse-stringing the ends. of the divided bowel, inverting, and apposing the cut edges of the mesentery and meso-colon and making an ileo-colostomy to the transverse colon."

Dr. William J. Mayo says, "We usually remove about 8 inches of ileum, the cæcum and most of the ascending colon, crushing the bowel ends and tying in the groove with catgut and turning in each with purse-string sutures, then do a lateral anastomosis with transverse colon underneath the omentum. We have done about thirty this way with excellent results.

"P. S.— In joining small to large bowel we do an immediate anastomosis."

Dr. John B. Murphy says, "The operation which I make is a complete excision of the cæcum with a lateral approximation of the peritoneal covered surfaces with the oblong button. The bowels must be thoroughly emptied for 3 days before the operation and nothing but beef teas and broths given for 6 days following. Both ends are inverted with suture, the button is inserted while the ends are open and the shank pushed through a small puncture in the side. This large lateral approximation gives ample opening for subsequent services."

Dr. Maurice H. Richardson says, "remove the tumor by a wide margin of healthy intestine and perform an end to end anastomosis."

All authorities are now agreed that to safely suture the intestines in performing anastomosis, the stitch must penetrate all coats. This may be accomplished by one of several excellent sutures,— Connell's, Halstead's, C. H. Mayo's and Cushing's.

The suturing is done from within out and without in, or from the mucosa to the serosa and the serosa to the mucosa, which inverts the edges and brings serous coats in apposition. The ends are tied so as to come within the lumen of the bowel. A Lembert or Cushing right angle suture furnishes additional security. It is well to add an omental graft over the line of work.

Drainage should not be employed to the point of union, as pointed out by William J. Mayo. It drains away the plastic lymph which is essential to safe union. In my opinion delicate drainage should be employed in the wall of the abdomen but not in the peritoneal cavity.

After Care: Morphine is given either before or directly after the operation to restrain peristalsis. An extremely low enema is given in small quantities (6 to 8 ounces). Food is withheld from the mouth for the first 48 hours; small quantities of water allowed. The first nutriment by the stomach should be sterile and predigested. The wound should be carefully watched for the first indication of leakage and early drainage employed if necessary.

### RESULTS.

Statistics of various operators show a steady improvement as to mortality and functional results.

In Conrath's series of eighty-one cases, the radical operation was performed upon forty-eight, making a mortality of 16%.

Kelly states that the mortality for resection of the cæcum for tuberculosis is 16.7% and that the operation for carcinoma is 37% higher, and that the results for resection of the cæcum in general are 25% higher, showing that tuberculosis offers a favorable opportunity for the radical operation.

The statistics of Mayo, Deaver, Murphy, Ochsner, Richardson and others of the past five years have been much better than in the older tables.

Earlier diagnosis, larger experience and more accurate methods are accountable for the improvement.

The author's experience in operations for tumors of the intestines is of modest proportions. It consists of ten laparotomies for intestinal growths. The average age of the patients was: Eight were females and two males. Four were tumors of the cæcum; three malignant and one benign. Three were malignant growths of the descending colon, one of the sigmoid and two of the small intestine. The radical operation for removal of the growth followed by anastomosis was performed on five of these cases; two upon the cæcum, one upon the cæcum and ascending colon, one upon the descending colon and one upon small intestine. Each of these patients recovered. Two of the patients were operated upon 2 years 7 months ago; one still living. One patient operated upon 1 year 5 months ago; still living. One patient operated upon 1 year 4 months ago; still living. One patient operated upon nine months ago; still living. Four are now living; one died of metastasis in the urethra two years following the operation. Upon four of the remaining cases colostomy was performed; upon one simple exploratory laparotomy. There were no immediate deaths. One patient lived two months; each of the other three died within the first week.

It is encouraging that there were no deaths after the radical operations and undoubtedly could the four cases upon which we only performed a colostomy have been operated upon at an earlier time, radical measures might have been possible and the results more favorable.

In conclusion, (1) tumors of the cæcum are of comparatively frequent occurrence. (2) Malignant disease of the cæcum occurs third in order of frequency in malignancy of the intestinal canal.

- (3) The differential diagnosis between tumors of the cæcum and acute lesions, such as appendicitis, intussusception and abscess is frequently difficult and not made before operation.
- (4) It is the duty of every abdominal surgeon to include in his equipment the necessary instruments for the performance of the radical and palliative operations for these conditions. He should also be prepared, theoretically and practically, by experimental work at least on cadaver or animal, to deal with these growths in the best manner possible.

The results of radical operations upon tumors of the cæcum and elsewhere in the intestine are most encouraging, the operations being primarily well borne and recurrence rather less frequent than in other more accessible organs.

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### DISCUSSION.

Dr. George R. Harris (Norwich): I have not very much to say.

The paper was very nearly perfect, except in regard to the diagnosis of these cases. We have all seen some of them and the diagnosis ordinarily is very difficult to make when we discover a tumor of the cæcum. Whether it is a benign or a malignant growth, the operation is a pretty difficult thing. I have very little to say about this any way.

Speaking in regard to the methods of uniting the ends of the intestines,

most any of these methods give good results.

Of course they all take time. I should imagine, however, if a man was pressed for time that the Murphy button would give good results and save him considerable time, as in most of these methods he has to close the end of the intestine and do additional work besides. I also think that unless one has had a great deal of experience in suturing that there is great danger of infection in the method of suturing inside out from mucosa to serosa with the cæcum opened. I think perhaps the Murphy button would lessen the danger of infection by shutting off the intestine immediately after operation. I have had but little personal experience with this class of cases.

I have seen one or two tuberculous tumors where there was a loop made around the growth and the ileum was taken and joined onto the cæcum, making a lateral anastomosis, and I have heard reports of one or two cases where patients have gone for a length of time apparently improved in general condition.

These cases were, I think, tuberculous in origin.

I have nothing more of importance to add to the discussion of the paper.

The President: We have with us today a guest to whom Doctor Smith referred in his paper. I shall invite him to continue this discussion. — Dr. B. F. Curtis of New York.

Dr. B. F. Curtis (New York): Mr. President and Gentlemen: I thank you very much for your welcome. I had no idea of discussing a paper when I came to Hartford, but the subject is one of such great interest that, if you will pardon a few unprepared remarks, I would like to say one or two things.

In the first place I would like to congratulate Doctor Smith on the good results he has obtained.

The operation upon the large intestine for suture and practically those of anastomosis of the small intestines into the large is more difficult than when only suturing the stomach and intestines together, as in gastroenterostomy. Doctor Smith has well said that the difficulties of diagnosis in this region are very great. The ileo-cæcal district appears to be one of the storm centers. We might compare it to the other center, which includes the pylorus, gall bladder, and portion of the colon. The symptoms produced by lesions of the ileo-cæcal loop are extremely uncertain. If you are fortunate enough to have a mass you can at least localize the position from which the symptoms originate, but having managed so far as to find a mass in the ileo-cæcal region, you are still very far from making a diagnosis.

One great difficulty is the manner in which the symptoms of chronic conditions imitate those of the acute — for instance, whether the cause of the obstruction is really acute or whether it is a long-standing lesion. A tumor may narrow the bowel without definite symptoms, the patient complaining occasionally of pain after indiscretion in eating but having no symptoms of any importance and being able to get about and work, is often satisfied to take some laxative for his constipation, until suddenly some small foreign body will block the opening and then you have symptoms of acute intestinal obstruction.

The same is true of the inflammatory conditions. You may have an abscess which exists, without any inflammatory symptoms, with no changes in the blood, with no changes in the temperature, at least so far as our observation of the case runs, and these abscesses may even be movable.

I have seen a small abscess in the neighborhood of the appendix which could be moved two or three inches being surrounded by omentum and practically free in the abdominal cavity. They naturally make one think of a neoplasm.

The variety of lesions found in the ileo-cæcal region which will give a tumor are extremely various.

We have to consider the presence of intussusception and masses of enlarged glands. I have, more than once, operated upon cases of supposed acute appendicitis which were lymphatic glands in the abdomen, and the ileo-cæcal valve and the appendix were entirely free. In some cases the patient may be walking about without any symptoms and still further complications come in the very movable condition of the cæcum, seen in some patients; not only may it be down in the pelvis but the tumors of the cæcum may be found in the sac of a hernia and, in a recent case, I found the cæcum adhered to the sigmoid. The mass there could not be felt beforehand. The patient was a decidedly stout woman, and on account of the stomach symptoms we made an exploration. She gave a history of having vomited,—nothing else.

Chemical diagnosis showed absence of hydrochloric acid. I made an exploratory incision and passed my hand down to the right iliac fossa and found nothing. On the left side I found a mass occurring upon one wall of the excum and not obstructing the ileo-excal valve adherent to the sigmoid. Some intestinal obstruction had been caused by numerous adhesions at point of excum so that the whole mass was absolutely fixed. I dissected it free.

The patient's condition forbade doing anything more than that, and I closed the abdomen, hoping to do a resection later. The obstruction was relieved, the patient did well until she died suddenly, about a week later, of asthma.

Technique, — I believe strongly in the lateral anastomosis. The most rapid method of suturing to close the ends of the bowel is the purse-string suture rather than the over-hand suture, although, in some cases, it may take less time to use the over-hand suture.

In emergency cases, where the ileum cannot be brought in contact with the large bowel because so much has been removed, it may be easier to bring over the sigmoid, close the colon end and unite the ileum with the sigmoid. I thank you, gentlemen.

Dr. D. F. Sullivan (Hartford): This is a very large and interesting subject. I rather regret that the author did not refer to the causation of the disease, which I believe to be a very important one in the majority of cases.

While looking at the fifth artistic picture of Doctor Smith's, it occurred to me, as he suggested in the paper, that in many cases where we operate

for appendicitis and to our surgical dismay find a normal appendix, would it not be possible by removing that appendix to do away with a large number of the lymphatics and thus possibly destroy the long-unrecognized ulcer of the excum? It is true, I believe, there is no disease of the intestine that advances so slowly, so insidiously and fatally, as the growths of the excum.

I really believe that many cases of appendicitis, so-called, are due to cancer of the cæcum.

In submitting this statement, I can recall a case I have seen here with Doctor Howe some time ago. The man, whose occupation was manufacturing cigars, was suddenly taken ill.

In twenty-four hours the case became moribund and diagnosis of intestinal perforation was made. Immediate operation was advised, which was accepted, and the cæcum was found to have a large perforation and in an advanced stage of malignant disease. The case terminated fatally.

Four cases out of five which I have had in my experience have been fatal. The four cases which died were proven by the microscope to be carcinoma; the fifth case, which is living, has a very interesting history.

Seven months previous to the operation he went through a course of typhoid fever, but never made complete recovery. He always complained of colicky pains, constipation, and more or less continued abdominal disturbances. In this case, upon examination, a tumor on the right side was easily palpable. The operation proved the growth was in the cæcum. A portion of the ileum, cæcum, ascending colon, and several inches of the transverse colon were removed.

The patient made an uninterrupted recovery and is apparently perfectly well. This case was diagnosed as carcinoma by the microscope, but as the man is well I really doubt its malignant nature.

I believe that the condition of the state of the surgery of the cæcum at the present time is somewhat similar to the surgery of the malignant diseases of the stomach. You will all admit that an ulcer is essential to the development of cancer. Now the presence of cancer proves the relative frequency of ulceration in the bowels. We know that many gastric ulcers which occur in the ston ach are far more frequent than cancer. Ulceration is very often present, of frequent occurrence, and a common cause of trouble.

Up to the present time permanent cures have been few but, with the accumulation of diagnostic aids, the fatalities will not be greater than for other abdominal surgery.

Recent studies in the pathology of the stomach show only a small proportion of the gastric ulcers terminating in cancer, and that a large majority of these ulcers cicatrize substantially or remain open indefinitely. We, therefore, know that ulcer is far more frequent than cancer, and this no doubt holds true of the colon as well as the pylorus, therefore, we may conclude that ulcer of the cæcum is of common occurrence.

It is no wonder that we make some mistakes and have some doubt as to the treatment, but it is my opinion that the time will come that will give us some idea of how these morbid processes advance.

In resorting to the systematic treatment of these cases and so-called emergency surgery, I believe it is a reflection upon the diagnosis of this trouble, and I believe the time will come when more accurate methods of diagnosis will be suggested and more effective means of treatment will be evolved, and we may be assured that in this region, as in other parts of the body, systematic medication and last resort surgery will in due time be supplanted by rational measures and timely operative procedures.

Dr. J. B. Boucher (Hartford): I have been very much interested in the paper of Doctor Smith's, as I am particularly interested in this subject. I do not know whether it has been my good fortune or misfortune, but I have had considerable experience in this line of work.

I want to say just a few words to emphasize some of the points made. One is in regard to diagnosis. I do not think we should wait to make a diagnosis when we have symptoms that indicate partial obstruction. Cancer of the bowel may be fatal even where the patient may have had absolutely no symptoms whatever, until obstruction takes place.

Cancer of the cæcum is the most favorable place for operation. In the first place it is the one portion of the bowel pretty thoroughly watched, and our symptoms are easier to determine because, as a rule, it is easier to detect an obstruction about the cæcum than in any other part of the intestinal tract.

The result of early operation in cancer of the bowels, like the results of operation in other parts of the body, are most gratifying. I doubt if there is a cancer in any part of the human body as easy to eradicate as in the large bowel. The glands are not very active and the involvement is liable to remain localized for some time.

Some of you may recall a case which I presented to the society five years ago. The diagnosis was made microscopically, by three different men, and all pronounced it adeno-carcinoma.

That man is perfectly well today. He has lived five years, and having had no recurrence in five years, we can safely consider him cured.

In the following year I had two others which are also well.

I want to say one word in regard to the operation.

I think if we operate at all we should go wide of the growth. If we have a cancer of the cæcum it seems to me that nothing less than the ascending colon and at least six or eight inches of the small intestine should come out. It does not cost the patient any more; in fact they do not seem to miss the ascending colon or cæcum at all.

I have six cases where I removed the cæcum. I think if we operate we should cut wide. We might just as well remove the growth.

In regard to the technique of the operation, I was very much pleased to have Doctor Smith review the opinion of such eminent surgeons. Personally I do the anastomosis by sewing the small bowel and transverse colon without any trouble, but still I can see where the lateral anastomosis is better if you do not have to interfere with the mesentery, as we have avoided so much danger.

There is only one point in the paper on which I cannot quite agree with Doctor Smith. I do not believe drainage is necessary. I do not believe it is advisable, and I think it is absolutely dangerous. I believe the peritoneum has greater resistance without a drain, and I believe if you put a drain in the peritoneal cavity after anastomosis, you are going to increase the dangers of suppuration. I say this from my own experience. I have had experience in eighteen cases, simple and malignant, without drainage and have had no deaths.

Dr. W. H. Carmalt (New Haven): I hope you will pardon an old man for recalling ancient history, but I can relate a case of the kind Dr. Smith exhibits that antedates most of the references given; and while I cannot offhand give the exact time, I will now say it was at least in the very early nineties, before Dr. Murphy had published the invention of his button and before the death of Dr. Jas. K. Thatcher, who died late in 1891.

The case was of a man past middle life who presented himself at the New Haven Hospital with a tumor in his right ileo-cæcal region and a history of chronic constipation of long standing, for which he had been under treatment by a number of physicians in a number of places. The symptoms of pain, flatulence, etc., had focused about that region and he wanted relief. He had discovered the tumor himself. The situation was exactly that of the tumor found in appendical disease; it had been there for some time (weeks), was not tender, he had no fever, it was moderately movable on the underlying parts. At the operation the tumor was found to involve the whole ileo-cæcal portion of the intestine, both ileum and cæcum, for several inches in length, and the underlying lymphatic glands were also involved. Everything was removed and an end-to-end anastomosis made by suture. This was accomplished without difficulty, inasmuch as the small intestine had become dilated and hypertrophied by reason of the obstruction to the gut below it, and the large intestine was correspondingly atrophied and contracted.

The patient recovered — he came from the vicinity of New London — and I heard of him for several years afterwards, perhaps five, and he continued quite well.

I speak of this case in order to get it on Dr. Smith's references, though I cannot at the moment recollect where it was published. I think it appeared in the Transactions of the American Surgical Association, but will look it up and give Dr. Smith the reference.\*

It depends altogether upon the conditions you find as to what particular operation you do. In the case I outlined, as I have said, the small intestine was as large as the large intestine, and there was no difficulty in making an exact end to end anastomosis.

The operation was performed Nov. 26, 1891, p. 113. J. B. Lippincott Company. The operation was performed Nov. 26, 1890.

# Recent Advances in the Knowledge of Cancer With Preliminary Notes on a New Line of Study.

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For general purposes recent advances in the knowledge of cancer can be divided into two classes. First, those of a general nature having to do more with the natural history of the disease, and, second, special studies, more or less generally accepted, which have been made with reference to some theory of causation.

Among the first-class, perhaps, the most important has been the gradually increasing proof as to the wide-spread incidence of cancer not only in all races of men but also in animals, at least in all vertebrates. This does not mean that it is proven that the exact frequency is the same in all human races and in all vertebrates as accurate statistics are entirely lacking. And, indeed, in accordance with one of our fundamental conceptions of cancer we must grant a priori that the incidence must be greater in higher races because with the advance of civilization the average longevity increases and more individuals get into the period of greatest liability to cancer than in the barbarous and semi-barbarous peoples. There are, too, certain racial or national differences depending more on a local circumstance or habit than on any generic condition. For instance: Of the Hindus and Mohammedans living side by side in India it is said that cancer of the penis is very common, (72 out of 329 cases of cancer) in the Hindus, who are not circumcised and who are very dirty in their habits; while in the Mohammedans, who are circumcised, it is very rare. In certain classes of the Indian people who chew an irritating vegetable product cancer of the mouth and tongue is said to be very com-Maxwell says that in the natives of Formosa cancer of the

tongue and lips is very rare. He attributes this circumstance to their smoking only water pipes or pipes with bamboo stems four or five feet long. An interesting form of cancer common in a certain class in India is an epithelioma of the skin of the abdomen or thighs due to frequent burns which they receive from a metal charcoal container which they carry under their garments for warmth.

In the domestic animals cases of cancer have been reported for a considerable time and there are even a number of cases of multiple growths; one of the last being a dog in the Johns Hopkins laboratory that had an epithelioma of the skin of the back and an adenocarcinoma of the prostate. I have at hand no statistics as to the relative frequency of cancer in large abattoirs except from Trotter, of Glasgow, who found primary adeno-carcinoma of the liver in one out of about every three hundred cows slaughtered. In the domestic animals it is said that glandular cancer is much more common than skin cancer even in those animals subject to harness. Plique, however, has noticed a considerable number of cancers in the commissure of the lips in horses due apparently to the irritation of the bit. Cancer of the penis is said to be much more common in the gelding than in the stallion, and is said to be due to the greater accumulation of smegma and dirt in the gelding on account of his impotence. There is said to be no difference in the incidence of cancer in normal or spayed or castrated dogs. There is now quite satisfactory evidence to prove that the same laws as to the greater frequency of cancer with advancing age hold good in the case of animals as well as man.

Concerning lower animals: In one year the British Imperial Cancer Research Fund received specimens of spontaneous cancer in the cow, dog, horse, sheep, pig, mouse, cat, hare, Indian parakeet, giant salamander, cod, gurnard, and trout.

Bashford, the Director of the British Fund, states that the "occurrence of cancer in marine fishes living in a state of nature makes it obvious that the conditions of human life peculiar to our

modern civilization have not called cancer into being. It remains to be seen whether they have even led to a higher incidence of the disease." Indeed, Bashford distinctly states elsewhere that he believes that when the truth is known it will be found that cancer is as common in many of the lower animal species as it is in man. In considering this question, however, we must remember that animals, even the domestic ones, are much closer to the margin in the struggle for existence than we are, and, just as in the case of various stages of human civilization, we must admit as a necessary corollary of our knowledge of the age laws of cancer that civilized man by escaping most of his former enemies has markedly increased his number reaching the age of greatest liability to cancer.

Naturalists have shown us that a wild animal very rarely dies a natural death. Some enemy gets him sooner or later. If we could take any animal species and place it under the most favorable conditions it is not to be doubted that the number of the species reaching old age would very much increase, and cancer and other diseases of later years would then appear prominent in the death rate.

One important fact in regard to cancer which has recently been freshly insisted upon by Gaylord and Clowes is that there have been a number of cases in which patients with undoubted cancer have recovered spontaneously.

Among the other important conclusions that Bashford draws from a very exhaustive study of the general subject are: first, that contrary to the usual ideas sarcoma is not more common in early life but follows the same laws as to age incidence that carcinoma does, and that the two are expressions of the same essential condition only they involve different tissues. The recent experience of Erlich, who had the opportunity of watching a propagated adeno-carcinoma of the mouse turn into a sarcoma with successive generations is added evidence on this subject. Second, that the alleged increase of cancer is not proven but that the statistics presented can be explained in other ways than by an actual increase.

Third, that none of the theories advanced to explain the cause of cancer are adequate for all the facts if, indeed, each is not proved impossible by one or more facts. Fourth, that as yet there is no proof of the influence of heredity, forests, lowlands, food, or any of the other external factors that are alleged to have an influence in causing cancer.

The possibility of transplanting successfully certain spontaneous cancers into other animals of the same species has, of course, enormously stimulated the experimental study of cancer, and has already contributed much to our knowledge and offers great promise for the future. Such experiments have been done in the rat and dog but the most numerous and important have been the well known adeno-carcinoma of the mouse. The mouse tumors do not all seem to be transplantable and the positive ones give a number of successes varying from a few up to 90%. The principal facts in this matter are beyond question. The tumors are true adeno-carcinomata. The transplanted tumors resemble the parent tumors in every respect. Infiltrative growth and metastasis take place in both the spontaneous and the propagated tumors. Cachexia is said not to occur until tumors ulcerate.

A fact which has been a considerable disappointment as far as studies in causation go is that when cancer tissue is transplanted in the mouse the new growth arises entirely from the transplanted cells. The new host furnishes only blood vessels and stroma and the process is entirely comparable to metastasis formation in the original mouse. It is obvious that if the reverse were true and that the transplantation of cancer material caused a cancerous degeneration on the part of the cells of the host much more information could be gained as to the true cause of such change.

The cancer cells in the propagated tumors are actual descendants of cells in the original mouse no matter how many generations of mice are used to carry on the growth. The most striking character, as pointed out by Bashford, is the apparently limitless powers of growth that the mouse cells possess after they have become cancerous. According to Bashford the amount of tissue grown from one mouse tumor would represent a St. Bernard dog, and these cells are still living and growing years after the normal length of life of the original mouse.

It is well before leaving the general discussion of this subject to recognize the fact that the microscope has as yet given us no real criterion of malignancy. Every pathologist will admit that he not infrequently sees tumors that he is unable to classify in this respect. For instance; many of the large cauliflower like pigmented warts and moles resemble carcinoma under the microscope in every particular. Indeed, Krompecker considers that they are true carcinomata but that for some reason connected with their congenital origin they are not malignant clinically. Again, the epulis tumors of the jaw cannot be distinguished as to malignancy except by their clinical course.

The discussion that has waged over the so-called venereal infectious granulomata in the dog also shows the failure of the microscope. Epithelial pearls can no longer be considered any criterion as Loeb has produced them in regeneration experiments in tissues unquestionably not cancerous. Some of the most perfect specimens of epithelial pearls that I personally have seen were shown me in a teratoma by W. C. Clarke in Prudden's laboratory.

II.

Before discussing the more special findings offered in evidence of some theory of causation a glance at these various theories is necessary. These theories are:

- I. Tiersch. That cancerous growth starts in a group of cells because the resistance of other cells such as connective tissues cells becomes reduced and an overgrowth of the stronger cells at the expense of the weaker takes place.
- II. Cohnheim. Cancers are due to "embryonic rests" which become displaced from their intended areas and after lying dormant for a time take on renewed activity and become cancers.
- III. Ribbert. That in addition to "embryonic rests" other cells become displaced by the thousand and one traumata that the

body is subject to, or else by chronic inflammation and cells displaced in this way become cancerous.

- IV. Hanseman. (Rather an explanation of the mode of growth than of the primary cause.) That cancerous growth is due to an essential degeneration or "anaplasia" of the cells, the distinguishing feature of which is an abnormal change in the character of mytotic figures.
- V. Trophoblast. (Farmer, More, Beard, etc.) That there is a close resemblance between the mytotic division in cancer cells to that of reproductive cells. That in the first stages of development of the original ovum certain cells are excluded from active part in the future development of the embryo but remain attached to it and later take on cancerous growth.
- VI. Erlich's Theory. An off-set of Erlich's side chain theory. That in certain cells the food ceptors increase in number or power, absorb more than normal food, and the over-nutrition leads to overgrowth and cancer.
- VII. The Parasite Theory. The theory that cancer is due to a parasite is perhaps gaining ground on the whole. Nothing in medicine now is the subject of so much bitter controversy pro and con. In any event it must be admitted that the parasitic origin, while not proved is a possibility and that evidence on the subject must be considered and carefully weighed. The factors on which those believing in parasites rest are:
- 1. That with the advance of civilization and closer crowding and communication cancer is increasing.
- 2. Evidences of its infectious origin. Its greater prevalence in certain sections of villages as related by Behla, and the alleged "cancer" houses are well known. The recently produced instances of increase in cancer among caged animals is also produced as strong evidence of infection. Thus, Pick reports a number of cases of carcinoma of the thyroid in trout confined in certain aquaria, while in his other aquaria it was absent. Loeb has reported that in a certain ranch in the Western United States a

number of cattle suffered from carcinoma of the inner angle of the eye. Gaylord relates a striking case in which over sixty mice developed tumors in a certain cage during a period of three years. During this time the location of the cage was changed several times, and at least once the stock was changed without interfering with the appearance of tumors.

Loeb and Gaylord have a still more striking case of a cage in Chicago in which Loeb found three rats with carcinoma of the thyroid. This cage was taken to the Buffalo laboratory and a number of rats from an entirely new source were put into it. Seven rats survived in it for considerable periods, and, of these, three developed sarcoma; one in the thyroid, one in the thigh, and another on the abdominal wall. Loeb has just reported on tumors in six mice received from one dealer who related that in one room where he had mice many such tumors had appeared, while in another similar room tumors had been rare.

A very interesting point to be noted in connection with these alleged instances of direct contagion is that in several, e. g., Loeb's cattle with the eye cancer, his rats with sarcoma of the thyroid, and Pick's trout with carcinoma of the thyroid, and Cooper's cases of carcinoma of the submaxillary and parotid glands of cows, the same organ has been involved so that if we are to carry out the evidence of infection to its logical conclusion a different parasite for different organs must be assumed.

3. The evidence from transplantation. The mere fact of the possibility of transplantation is, I believe, by no one adduced per se as an evidence of a parasite. First of all, if it were a parasite we would not suppose that the possibility of transplantation would be limited absolutely to animals of the same species. Furthermore, it is admitted by all that it is necessary to transplant the cancer cells themselves and that when transplanted it is these cells that develop the tumor. Nothing is introduced which causes the tissues of the host to turn into cancer. Some of the phenomena of transplantation, however, do lend themselves to the parasite argument; viz.: first, Clowes, has shown that the activity of

some tumors of low powers of transplantation can be much increased by incubation for some hours. Others, however, have claimed just the opposite, i. e., that incubation destroys while cold-storage increases the power of transplantation. Second, the work in Gaylord's laboratory would indicate that in certain mice which recover from transplanted tumors there is a marked immunity to reinoculation even with more virulent tumors, and that the serum of such recovered mice seems to have a protective influence in other mice. (Loeb's work is in some respects antagonistic to Gaylord's in this particular.)

- 4. Fischer's Experiments. In October, 1906, in Münch. Med. Wochenschrift, Fischer described certain experiments in rabbits in which by the injection subcutaneously of "Scarlet R" he succeeded in producing growths in the skin which microscopically cannot be distinguished from epithelioma. The parasite men, therefore, argue that the temporary irritation of "Scarlet R" can produce growths which microscopically have all the characters of malignancy but are not malignant clinically because the irritant is not continuous in its action. A continuous irritant, such as a self-propagating parasite, will not only give the microscopic pictures but will by its continuous action keep up the growth of epithelium continuously and thus establish clinical as well as microscopical malignancy.
- 5. Another argument appropriated for the benefit of the parasite is the so-called infectious venereal granuloma in dogs. This is a tumor unquestionably transmitted by coitus, highly infectious and clinically entirely resembling an infectious disease, and comparable to syphilis. Those opposing the parasite theory maintain steadily that this tumor is not at all a cancer but a true infectious granuloma. The parasite advocates, however, and other pathologists, such as Ewing and Beebe, who, as far as I know, are not avowedly on either side, maintain just as strongly that the growth is a true sarcoma. This is another illustration of the fact noted above that the question of malignancy cannot always be determined by the microscope.

6. Last but not least in the evidences adduced as proof of a parasitic cause, are the alleged parasites themselves. Many have been called but none have been chosen. We must admit a certain analogy in the Plasmidiophera Bassicæ of plant life but the presence of similar bodies in animal cancer is yet to be proved, and as yet a true parasite has not been found unless the test of time shall substantiate the recently published findings of Gaylord in regard to the presence of spirochete in mouse tumors.

THE THEORY OF EXAGGERATED PHYSIOLOGICAL GROWTH.

VIII. This theory, vague in many ways and differently interpreted by different observers, is also gaining ground. Many hold it while admitting that it is far from approaching demonstration, and, indeed, there is at present perhaps less direct evidence than in the case of the parasite theory.

In its main essentials this theory is that "rests" either embryonic or after-birth from trauma are not necessary nor is an external irritant such as a parasite necessary but that it is more probable that the cause of cancer lies within the cells themselves.

Cancer with this school is an abnormal expression of physiological
growth. It is, of course, evident that even if it be proven that
cancer is such an abnormal expression of a physiological function
we are as far as ever from the essential cause or factor that stimulates the abnormal growth. This is freely granted but the preliminary question is the crucial one; namely, is the cause extrinsic
or intrinsic to the cells?

An elementary fact of great importance, which we may infer from the capacity for growth in unicellular and many higher forms, from the repeated regeneration of amputated parts and from the limitless growth of the mouse tumor cells, is that the animal cell as protoplasm per se has an unlimited power of reproduction. Bacteria or any unicellular animal could bury in the surface of the earth many feet deep if they could but have sufficient food supply and other favorable conditions. With the higher animals too there can be little doubt but that so far as the

capacity for reproduction of the individual cells goes there need be no limit to size. The general standard of size for any animal is set by hereditary influences, in the evolutionist's acceptation of the word, which inhibit further growth. Growth does not stop because cells lose their power of multiplication. Cells in all parts of the body have the intrinsic property of taking on the limitless and lawless growth which we know as cancer.

One of the first arguments along this line is the unquestionable connection between cancer and constant trauma or chronic inflammation. By these forces tissues are constantly being destroyed and as constantly going on to supply new cells for those destroyed. The regeneration or new growth of cells for a time remains within normal limits, and we have a chronic inflammation or a simple ulcer. Later, for some reason, the regenerative process oversteps its usual bounds and we have an excessive, limitless growth, or cancer. For instance, take the ulcer of the stomach or the Kangri burns in India above referred to. Here the ulcerative process or the charcoal is constantly destroying a certain number of cells and the tissue left intact is constantly regenerating and trying to repair the loss. The ulcer or the burns remain stationary perhaps for ten years and then they turn into cancer. It is quite far afield to assume that a Cohnheim rest was present all the time and little better to assume that a parasite happened along.

The influence of trauma cannot be denied. Hartley recently states that seventy per cent. of carcinomata occur in positions which are the seat of frequent trauma. Coley has frequently written of the influence of single trauma in causing sarcoma and Lowenstein has collected many cases in which the fact that a blow caused sarcoma to develop in a short time can hardly be doubted. In every such case the constant feature is a regenerative process or stimulation of growth of cells which have an inherent tendency to limitless reproduction.

Adami's studies on growth both in general and with special reference to cancer formation certainly carry suggestions which cannot be ignored. Adami, Sachs, and others have shown "that

the characteristic functionating specific cells of any tissue do not divide and give rise to new cells but that the new characteristic cells are supplied by division of 'mother' cells which are present in the tissues. These 'mother' cells are of somewhat more embryonal type and never have the same characters as the specific functionating cells. Excellent examples of the 'mother' cells are the osteoblasts and the small round epithelial cells lying near the membrana propria in ciliated epithelium. In a few instances irritation may cause the specific cells to divide into new more or less specific cells but this is only after the irritation has caused a reversion of the specific cells to the 'mother type.'"

"If the daughter cells in a tissue do not attain full specific differentiation they are peculiarly liable to proliferate and functionate not as specific cells but as 'mother' cells. Tissues in which cellular elements exhibit frequent mitosis are those especially liable to excessive growth and tumor formation.

"In later life as tissues become exhausted the more highly differentiated cells become structurally similar, and revert to a type more liable to assume proliferative powers.

"Tumors are to be considered as being derived:

- 1. "From embryonal rests which have for a shorter or longer period remained latent in one or other tissues and have taken upon themselves a rapid proliferation leading to tumor formation." (e. g., teratoma and certain growths, such as myomata and hypernephroma in the kidney substance.)
- 2. "From mother cells of a tissue which remaining undifferentiated, but capable of active proliferation throughout life now assume excessive proliferative powers, their daughter cells retaining to a greater or less extent the characters of mother cells.
- 3. "From differentiated cells which reverting to a simpler type with this reversion gain the capacity for active and excessive proliferation." (Quotations from Adami in Jacobi Festschrift.)

Classes 2 and 3 would each include both benign and malignant tumors. It is highly significant that from those cells which have

little or no power of proliferation and regeneration to replace injured tissues, such as the ganglion cells of the brain and striated muscle, malignant growths are practically unknown.

It has occurred to the writer that if tumor growth depends on an increased stimulation of proliferative powers of the mother cells or indirectly by reducing specific cells more nearly to the mother type, it should be possible to get a clue to some of the phenomena of cell proliferation if not of cancer itself through study of the conditions in repeated regeneration in lower animals. My principal work so far has been with the ordinary crimson spotted newts common in the ponds of our northeastern states. Some two hundred of these animals were started in with a year ago. Only twenty-five, however, survived the winter. These living animals have grown out tails repeatedly after nine amputations. It takes about one month to grow about one-half inch Sections are made of each regenerated part. It cannot be said that as yet there has been anything distinctive found in these sections. They do, however, show a marked increase in the number of mitotic figures, an increase in the number of cell layers in the epithelium, and a marked increase in the number of cells in the connective tissues: ordinarily very poor in cells. In several sections the increased cell proliferation has been in many ways suggestive of cancerous growth, but as yet these pictures are probably accidental.

The repeated amputation, of course, must stimulate the proliferative powers enormously, and, even if it will never produce cancer, it is quite probable that it will produce conditions which may throw great light on our ideas of the exaggerated normal growth which may lead up to cancer. The whole work has so far been so suggestive that I feel much encouraged to continue it in my own laboratory, and I outline it at this time, thinking that in the hands of other workers, with more technical skill and more resources in money, and laboratory staff and equipment, results may be produced more quickly.

In closing a discussion of the varied aspects and various theories of cancer one cannot but reflect that the subject is too broad and involves too many deep principles in pathology, biology, and even evolution for the problem to be solved by any single series of investigations. Nor when it is solved will it probably be included entirely under any theory as at present formulated. Each school and many workers will undoubtedly be able to feel that they have helped to untie many of the hard knots in the ravel, and each school will probably have to admit that a bitter rival has contributed knowledge without which success could not have been obtained. The cancer problem indeed is broader than the scope of any single science. It will not be solved by the pathologist alone; or by the surgeon, or by the mouse-man, or by the evolutionist. Its solution lies beyond in the unification of many of these sciences or in philosophy, as Spencer has conceived the word.

### The Reduction of Dislocations.

D. CHESTER BROWN, M.D., Danbury.

The reduction of dislocations without anæsthetics and without pain could be easily accomplished if there were no other factors to be considered in dislocation of joints than the slipping of the head of a bone through the rent in the capsular ligament of the joint, but the moment that there is the least motion of the head of the bone a spasm of muscular contraction takes place that is more to blame for the pain and inability to replace a simple dislocation than any other factor. It is to suggest a method of avoidance of this pain and obstacle to reduction that is the object of this paper. Any motion, even the slightest, that causes pain or its dread, will produce this muscular spasm; the most careful manipulation for diagnostic purposes as well as the ordinary methods of attempting reduction.

Leaving out of the question all complicating factors, such as secondary positions, displaced tendons, capsular ligament bands etc. I wish to emphasize this one thing only as what is primarily aimed at, the avoidance of muscular spasm as a cause of pain and an obstacle to reduction.

To generalize: Step 1; traction is made on the limb and maintained through all steps and in a direction that will overcome the tension of the muscles that give motion to the joint, to the amount of slightly less than the weight of the limb.

Step 2; motion of the limb, that tends to put the ligaments that surround the joint on uniform tension.

Step 3; reduction by slipping the dislocated bone back onto its articulating surface by manipulation at the joint.

As dislocations of the shoulder form more than half of all dislocations and as my experience has been greater with them than

with other forms I will describe the method as applied to this joint. The wrist of the affected arm is taken hold of, so gently and so slowly that the mind of the patient has plenty of time to grasp the fundamental idea, that there is to be no roughness and no hurting. The position of the operator must be easy and such that a continuous perfect muscular poise may be maintained for a considerable time. Shifting of the grasp or changing of the body position is enough to originate a spasm. Very gently and very slowly, traction is increased on the arm by this one hand that grasped the wrist, only, until the tension equals slightly less than the weight of the limb. The time for accumulating this amount of traction probably will be about two or three minutes. When the proper point has been reached the patient is liable to express the fact that "it feels easier." I take it that this indicates that the normal muscle tone for the disarranged joint has been compensated. At this point and not until this, is there any attempt made at a change of the position of the arm. It is now abducted and with the same deliberation and uniformity of pace that characterized the extension. A false motion or inequality of progress may make it necessary to stop at that point and hold nearly as long or even longer than the original extension. When the limb has been brought up to the horizontal with the gentle extension still maintained, the disengaged hand reaches out and simply tucks the head of the bone into its socket.

My experience with this method has been very limited and I had no idea of giving it without more data than I have accumulated, but at the solicitation of Dr. McKnight, who was so taken with the promise of a paper of not more than five minutes duration, that he overlooked everything else, I here present the almost unsupported idea, with the firm conviction that its application will reduce some cases of dislocation with greater ease than you have been accustomed to believe possible.

I have had seven cases of dislocation of the shoulder, two of the elbow and one of the hip in which the method has been used. The failures have been one of the shoulder, one of the elbow and one of the hip. The failures have been even more interesting than the successes and merit analysis: The shoulder case was in a very muscular man and the physician in attendance had made repeated attempts at reduction while the patient had repeatedly fortified himself from the bottle of courage. I tried the method on this case, and was myself in a very skeptical mind about its success under the conditions. I did succeed in getting a fairly good condition of reduction, but there was something wrong and an anæsthetic was used and the joint left in as good condition as we could put it in. It was not satisfactory at the time and was not satisfactory to the man afterwards, although I don't know what the pathological condition was. The hip dislocation was onto the dorsum and was in a tremendous thigh of a young carpenter who had fallen 25 feet and had suffered attempts at reduction. I lacked confidence in the result because, although I easily brought the limb into what appeared to be position, it did not stay there. I found under anæsthesia, what I might have easily ascertained without, namely, that the upper edge of the acetabulum had been fractured. The result in this case was perfect. The other failure was in a boy who had dislocated his elbow backwards and fractured the internal condyle. Here also reduction was accomplished, but I did not dare trust the result without anæsthetic and I was able to improve the condition under deep anæsthesia and with nearly a perfect elbow. The other cases were too simple and easy to be noteworthy.

From this limited experience I am at present in this mind; that simple dislocations can be easily and painlessly reduced by this method in the majority of cases, that some complicated conditions can also be handled in the same way according to the dexterity of the operator, each dislocation being treated according to the position of the bone in the manipulation that is used for its reduction, the only ideas presented being gentleness and deliberation in extension and the avoidance of false and leverage motions.

#### DISCUSSION.

Dr. E. A. Wells (Hartford): It might be well to just mention a method which, at one time, was the routine of the Hudson Street Hospital in New York, which reminds me of the practice laid down by the doctor; at one time it was a custom to suspend a slight weight from the dislocated limb and simply allow that weight to gradually overcome the muscle spasm.

In fact, they used that method so much that they had a table constructed for that purpose. The patient was laid on this table, the shoulder or hip strapped in place, and the weight attached to the dislocated extremity; in the course of fifteen or twenty minutes the majority of cases were reduced. This is practically the same as the doctor speaks of, excepting that it has the advantage of gravity being used, which is more uniform than the pull exerted by the surgeon.

Dr. G. R. Harris (Norwich): Mr. President, I would like to say a few words further, but only in regard to dislocations.

In James Street, and before this in Hudson Street, in 1888, Doctor Stimson was making investigations in regard to reducing dislocations. I do not know that I ever, in James Street Hospital, saw a man put under ether to reduce a dislocation.

Doctor Stimson has said: Lay the man on his face on the table, let the dislocated limb hang down, attach a weight to the toe, and let the leg swing, and, finally when the leg is swinging easily, tap the leg just back of the knee without using force.

I have seen him reduce three of these in a short time without trying it a second time, with a slight blow on the back of the knee joint.

By this method you got relaxation and the blow would reduce the dislocation.

Doctor Stimson had a high table, and when we got a dorsal dislocation it was an occasion for a great celebration.

## Some "A Priori" Considerations in the Diagnosis of Fractures.

[With special consideration of fractures by leverage.]

LEONARD W. BACON, M.D., New Haven, Conn.

Under the head of "a priori" considerations belong properly all the observations which can lead to a diagnosis of fracture in the bones (and I propose to restrict the discussion to the long bones) of the body, which may be made without direct palpation of the injured member at the seat of the injury and without the use of the X-ray. These are, in short the indirect as opposed to the direct evidences of fracture. The principal of these are enumerated below, to wit:—

- 1. The previous history of 'the patient up to the time of the accident.
  - 2. The history of the accident proper.
- 3. The further history of the patient, from the time of the accident to that of the examination.
- 4. The inspection of the surface of the injured member for evidences of bruising or of extravasations of blood.
- 5. The study of the position and contour of the injured member.
- 6. The comparative mensuration of the injured and the sound side.
  - 7. The residue of active function.
  - 8. The limitations of passive motion.
  - 9. The point of greatest pain.
- 10. The condition of nerve and vascular supply distal to the point of injury.
  - 11. The comparison of the data thus gathered with those of

the paradigmatic fractures which are known to occur commonly in the region of the injury before us.

When these data have been gathered and weighed, the direct palpation of the seat of the injury will be limited in its object to five specific points:—

- 1. The determination of the point or points of greatest tenderness.
  - 2. The eliciting of crepitation.
- 3. The determination of the exact site of a false point of motion.
- 4. The determination of the relative position, the relative motility and the contour of the bony apophyses in the neighborhood of the injury.
  - 5. Direct palpation of the edges of the fragments.

While both of these sets of diagnostic factors are important, and indeed generally indispensable in arriving at a correct conclusion with regard to most fractures of the long bones, yet the fact that those first enumerated can be determined, in most cases, without any considerable pain to the patient, and when duly ascertained reduce the need of the more painful manipulations to a minimum, indeed to the determination of the five specific points only which are enumerated in the second category, this fact suffices to make it wise to exhaust, as far as possible, the diagnostic possibilities of the "a priori" considerations before proceeding to elicit the direct evidences of fracture. In not a few instances, indeed, the information gained by skilful examination and careful consideration of the first set of factors, will of itself suffice for a positive and incontrovertible diagnosis.

To discuss in detail all the factors classed above under the caption of "a priori" considerations would carry me far beyond the limits allowed, and I shall therefore restrict myself to but one or two points which appear to me suggestive.

A scientific diagnostic method, as opposed to an empirical diagnostic method, is one which is based on the definition of science as "classified knowledge," and it consists essentially in classifying the

different factors brought out in our investigations into general and specific, much as the zoölogist classifies, and thus identifies the animals which he studies. Now one of the most important classifications of fractures from a diagnostic point of view, is into fractures by direct violence, and fractures by indirect violence. These latter fractures, those by indirect violence, may in turn be profitably divided into fractures by directly transmitted thrust, and fractures by leverage. It is to this last class of fractures, namely to fractures by leverage, that I shall seek more particularly to direct your attention on this occasion.

In considering fractures by leverage, the greatest importance attaches to the history of the accident proper, and the three capital points in this history are: 1, the nature and the amount of the force which was applied to the injured limb; 2, the exact point of the body where that force was applied and the direction in which the force was acting; and 3, the attitude of the patient, and especially of the injured limb when the injury was received.

Though, in the very nature of the case, these are points upon which it is generally difficult to secure accurate information, yet, under favorable conditions these elements in the history can be obtained by careful questioning of the patient or of his friends, and even approximately accurate statements may find corroboration or correction from further examination of the injured limb. Where a reasonably detailed history of the accident can be obtained, it is generally so useful a guide in establishing the diagnosis that it is well worth while to note in all cases as accurately as possible all the facts that careful questioning can elicit, coupled with all corroborative evidence obtainable from examination, which may bear upon the three capital points referred to above.

Indeed, given with a fair degree of accuracy the point at which the force was applied, the direction in which it was acting and the attitude of the limb at the time the injury was received, we can determine the elements of the relatively simple problem in mechanics, whose solution will give us, with a considerable degree of certainty, the site and the direction of the line of separation in the fracture which must ensue. The problem is naturally simplest in fractures near the ginglymus, or hinge joints. These joints permit of motion in but two directions, that is flexion and extension, and fractures by leverage in the neighborhood of these joints are generally produced by an excess of motion in one or the other of these directions. This is perhaps most clearly recognizable in fractures by leverage about the elbow joint, where the humerus is broken above the condyles.

Let us analyze the forces which come into play here, with a view to ascertaining the rule by which we may predict what line the fracture will be likely to follow. The simplest case is that of fracture by hyperextension of the joint.

This force can be resolved into two components. First a distinct shearing force, tending to produce fracture in a plane directly perpendicular to the axis of the limb, and secondly, a longitudinal thrust from below upward, in the axis of the limb. The first of these two moments, the shearing force, acts parallel to the force applied to the forearm, and is transmitted along the radius and ulna, and through the tough anterior capsular ligament to the point of attachment of this anterior capsular ligament to the humerus.

If this force acted alone, and were exerted on the anterior surface of the hand, the wrist or the forearm, in a direction perpendicular to the axis of the extended arm and acted in the plane of flexion and extension of the elbow joint, then the arm would tend to break transversely, at a point midway between the point where the force was applied and the shoulder. As we find in practice that the hyperextending force is generally applied at or near the wrist, it follows that the midpoint falls in the vicinity of the elbow joint. Below the elbow joint fracture does not occur from this cause, for the reason that the combined resistance of the radius and the ulna is considerably greater than the resistance of the capsular ligament, or than the resistance of the lower end of the humerus. At the elbow joint the limb not infrequently gives way through rupture of the anterior portion of the capsular ligament, producing a backward dislocation of the forearm. But

the commonest result of a breaking force applied in the sense of a hyperextension of the elbow is a supracondyloid fracture of the lower end of the humerus.

The point where the fracture will begin is then determined to be the line of the anterior attachment of the capsular ligament. As stated above, if the shearing force alone were in play, the line of fracture would be parallel to the line of action of that force, and it would follow that when this force was applied perpendicularly to the axis of the limb, the line of fracture would be directly transverse; and, again, if this force were applied, in the same sagittal plane but obliquely from below upward, the line of fracture would be also, as indeed we constantly find it, oblique from below upward, and from before backward.

But there is another, and a very important moment of the force which occasions an extension-fracture of the lower end of the humerus, and this is the powerful longitudinal thrust of the radius against the capitellum and of the ulna against the trochlea. The whole forearm, with its flexible extension, the firmly attached anterior portion of the capsular ligament, acts as a very powerful lever of the second class, where the firm attachment of the ligament to the humerus forms the fulcrum, where the articulating surface of the humerus represents the weight, and where all of the arm, from the site of the attachment of the ligament to the point where the vulnerating force is applied, represents the power arm of the lever. In this lever-system, the fulcrum and the weight are so close together, and the power-arm is relatively so long that the longitudinal thrust of the bones of the forearm upon the lower end of the humerus is very great indeed. It follows from the magnitude of this thrust as a component of the force causing fracture above the elbow by hyperextension, that even when the breaking force is applied absolutely perpendicularly to the axis of the limb, as would be the case when the extended elbow rested horizontally, in full supination across a rail, and weight sufficient to cause fracture were to fall upon the upturned palm, still even in this case the line of fracture would not be transverse, but

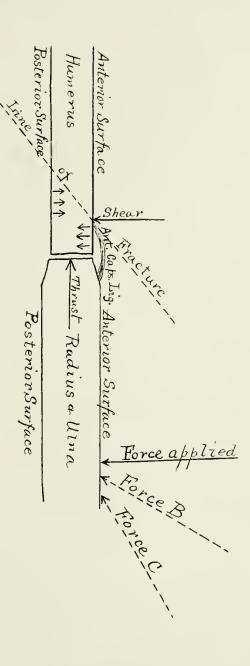


FIG. 1. Diagram illustrating the combined shear and thrust and resultant obliquity of an "extension fracture" at the elbow. Application of the force obliquity, as at E, will obviously increase the obliquity of the line of fracture, maximuch as it increases the thrust and decreases the shear. Increase the obliquity of the incident force still further, as at C, and the shear will be so tar diminished that the tendency to break near the elbow will be so small that virtually the whole of the thrust will be transmitted to the head of the humerus



would be, as indeed we constantly find it, oblique from before backward, and from below upward. Any obliquity which the impinging force might present in the sense of being directed more toward the shoulder, would tend to increase this longitudinal thrust in the parallelogram of the forces acting to fracture the humerus, and would increase the obliquity of the line of fracture. Now, as the actual forces which bring about this fracture of the humerus by extension are usually decidedly oblique, in this very sense of being directed toward the shoulder (the commonest cause of the fracture is a fall upon the hand, with the arm extended and abducted), it follows that in most fractures of this kind the obliquity of the line of fracture is very marked, so much so that the sharp and jagged edge of the proximal fragment is in danger of doing damage to vascular and nervous structures passing before it in the bend of the elbow. The mechanics of this fracture is exhibited diagrammatically in Fig. 1.

But our study of the forces acting upon the elbow to produce a fracture by extension will allow us to deduce certain further corollaries with regard to falls upon the hand with the arm in extension.

We have already seen that if a breaking force is applied to the hand or to the wrist, acting in the sagittal plane and perpendicularly to the axis of the limb, we must get either a backward dislocation of the forearm through rupture of the anterior portion of the capsular ligament, or else an oblique fracture of the humerus above the condyles. But with every degree of obliquity of the fracturing force, its longitudinal component will increase, while the directly shearing component diminishes rapidly toward the vanishing point, so that the obliquity of the line of fracture will increase very considerably. With an increase in the obliquity of the plane of the fracture the area of this plane will increase very rapidly, and it requires but a few additional degrees of the enhanced obliquity of the plane of fracture to present to the fracturing force an obstacle so great that the humerus will not break across above the

condyles, but will, on the contrary, transmit the force to the shoulder, and occasion a pertubercular fracture of the upper end of the bone, unless, indeed, its lower end yield first with a fracture of the external condyle through the immediate impact of the radius against the capitellum.

Now most fractures at the elbow by extension are caused by a fall on the pronated or semi-pronated hand with the arm in extension, the hand being thus instinctively thrust out to save the body in falling; and such fractures are specially apt to occur when the patient falls backward or to the side. If in such a fall the hand strike the ground behind the centre of gravity and at some distance from the body, and the force exerted on the hand be sufficient, a backward dislocation of the forearm, or a supracondyloid fracture of the humerus, must follow. Such a fall is illustrated in Fig. 2.

If the hand be nearer the body, we must expect a pertubercular fracture of the upper end of the humerus or a fracture of the external condyle, as shown in Fig. 3.

While if the hand strike the ground close to the body, the extreme and forcible dorsal flexion of the wrist will occasion a Colles' fracture of the radius, which will prevent the force from being transmitted further up the arm. See Fig. 4.

Flexion fractures of the humerus above the condyles may be produced experimentally by forced flexion of the forearm upon the upper arm. In this case too, the force may be decomposed into a shearing force and a longitudinal thrust. The shearing force is brought to bear by the traction from behind forward of the taut posterior portion of the capsular ligament, which force, if it acted alone, would fracture the humerus transversely at the point where this portion of the capsular ligament is attached to the bone. But as in the previous case (that of fracture by extension), we have to reckon here also with a powerful longitudinal thrust, exerted chiefly through the sigmoid notch of the ulna, which is pressed



F1G. 2



FIG. 3.





F16. 4



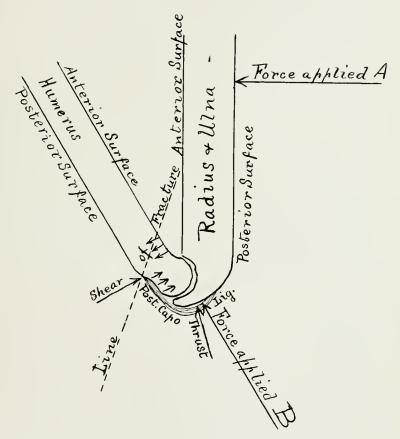


FIG. 5. Diagram illustrating the combined shear and thrust and the resultant obliquity of a "flexion fracture" at the elbow. This tracture can be produced experimentally by pure hyperflexion, with the force applied to the back of the forearm, as at A. The same combination of shear and thrust is more commonly brought about in practice by a fall on the partly flexed elbow, as at B.



by the same taut capsular ligament, forcibly against the trochlea of the humerus, and causes the plane of fracture to be oblique from behind forward and from below upward.

But as a matter of fact fractures of the lower end of the humerus of the type we recognize as "flexion fractures" are not, in practice, ordinarily brought about by forced flexion of the elbow, but rather by a fall on the tip of the elbow, in considerable, though not in forced flexion. The same moments of force, i. e., a shearing stress and a longitudinal stress are active, just as in the experimental fractures by pure forced flexion, but their mechanical application is generally a different one. Two additional factors combine here to make the plane of fracture oblique from below upward and from behind forward, first, the breaking force itself is generally applied obliquely in a fall upon the elbow; and secondly, the axis of the lower end of the humerus is slightly inclined forward near the condyles, enough to occasion an obliquity of the plane of fracture, exactly in the sense of a "flexion fracture." even if the posterior portion of the capsular ligament be not put actively upon the stretch. I have tried to illustrate the mechanical conditions diagrammatically in Fig. 5.

Perfectly typical "extension fractures" and "flexion fractures" are seen near other ginglymoid joints, particularly at the wrist. Of these by far the commonest is the well known Colles' fracture, where the mechanism is strictly parallel to that of the supra-condyloid fracture by extension. A Colles' fracture is produced by a fall upon the palm of the hand in extreme extension. The shearing force is applied to the lower end of the radius through the tension upon the volar ligament. If this force acted alone the result would be a transverse fracture at the point of the anterior ligamentary attachment; but a powerful upward thrust from the carpus is likewise and simultaneously exerted upon the articular surface of the radius, and the resulting line of fracture is oblique, from before backward and from below upward. It is this longitudinal thrust which occasions the firm, and almost invariable impaction of the fragments.

Though much less frequent in its occurrence than the Colles' fracture, the flexion fracture at the wrist, through a fall upon the clenched fist or upon the dorsum of the hand, is equally characteristic. Here the shearing force is represented by the tension of the dorsal ligament of the wrist-joint upon the radius at the ligamentary attachment, and what would otherwise be a transverse fracture of the radius at this point, is coverted into a fracture oblique from behind forward and from below upward by the same upward thrust of the carpus against the articular surface of the radius as was operative in the Colles' fracture.

In similar fashion this characteristic obliquity of the line of fracture, whether in fracture by extension or in fracture by flexion, can be predicted of all the ginglymoid joints where excessive and violent extension or flexion can be determined to have been operative in the injury.

From this study then of fractures by leverage near a gingly-moid joint we may deduce the general rule we have been seeking for, namely this, that the fracture will start at the attachment to the bone of that portion of the capsular ligament (or of its more or less distinct and independent fibrous reinforcements) which is put upon the stretch by the leverage exerted (i. e., it is the shearing force which starts the fracture) and the fissure will be oblique in that direction in which the thrust of the adjacent bone is operative.

But there are two other joints where fracture occurs often by leverage, where the mechanics of fracture is sufficiently interesting to repay some moments' attention, though the mechanical conditions are not so simple as in the ginglymoid joints: these are fracture of the upper end of the humerus by leverage and fracture of the upper end of the femur by leverage.

At the shoulder the motion which is most nearly analogous to the flexion and extension of the ginglymoid joints is that of adduction and abduction of the arm. The analogue of the hyperextension of the elbow, with the consequent oblique supra-condyloid fracture, is the hyper-abduction of the arm (especially with

a semi-flexed elbow). This is a form of violence to which the shoulder is not rarely subjected; a very typical case occurred some years ago in my practice, where a man walking in a hayloft slipped through a narrow trap-door used for throwing down hay to the stables below; as he felt himself slipping down through the trap-door he naturally and instinctively abducted both arms with the elbows flexed to arrest his fall, but as he was a heavy man he did not succeed in holding himself back from a fall through the trap-door to the stable below. That such a hyper-abduction of the arm does not result in a fracture of the upper end of the humerus is due to the fact that the inferior portion of the capsular ligament of the shoulder-joint, which is put on the stretch by this manœuver, is so much less resistant than the bone that it invariably yields first, and through the rent capsule the head of the humerus escapes to give a subglenoid, or subcoracoid dislocation of the shoulder. In the case referred to the patient had a bilateral subcoraçoid dislocation of the shoulder. Owing then chiefly to the relative weakness of the lower portion of the capsular ligament of the shoulder-joint, the analogue of the extension fracture of the elbow and other ginglymoid joints does not occur at the shoulder, but the outcome of the analogous motion in the shoulder, i. e., hyper-abduction, is to be found in a subglenoid, or a subcoraçoid dislocation of the head of the humerus.

But if the fracture near a ginglymoid joint by extension does not offer an analogue at the shoulder, but is represented only by a dislocation downward of the head of the humerus, the companion fracture, that by flexion (hyper-adduction) does occur, and that by a mechanism which it will pay us to examine for a moment. As before stated, the analogue of the flexion of a ginglymoid joint, when applied to the shoulder, is adduction of the arm. Now in normal attitudes of the body, abduction of the arm is practically unlimited, save by the tension of the lower portion of the capsular ligament, and by the action of the muscles of the shoulder, but adduction is very strictly limited by the falling of the arm against the side of the trunk, unless the adduction be coupled with a very

large moment of forward extension, by which the arm is carried across the front of the thorax; with which latter impure adduction we have at present nothing to do. How is it then that an adduction fracture at the shoulder, the strict analogue of a flexion fracture near a ginglymoid joint, is brought about? A very brief analysis of the mechanics of shoulder adduction and abduction will show. Abduction of the shoulder consists in increasing the obtuseness of the angle between the axis of the humerus and the external border of the scapula. It is brought about by raising the arm from the side. Adduction, on the other hand, consists in increasing the acuity of this angle; it can be brought about in only a slight degree by forcing the arm against the side of the thorax, not at all to a degree sufficient to produce any considerable strain on the capsular ligament, or to cause a fracture of the upper end of the humerus by leverage. But the acuity of this angle can be very readily, and almost indefinitely increased by an upward thrust in the line of the axis of the humerus, and this upward thrust it is which gives us by leverage a pure adduction fracture of the upper end of the humerus, an exact counterpart of the flexion fracture in the neighborhood of a ginglymoid joint. A fracture whose line of cleavage must, by the action of the mechanical forces involved, be inevitably oblique from above downward and from without inward.

The only fracture of the upper end of the humerus we shall have time to consider here is that by hyperadduction. The exciting cause of this fracture is, as has been explained above, an upward thrust in the line of the axis of the humerus, generally produced by a fall upon the hand or upon the elbow. A force thus applied may be resolved into a shear and a thrust. The shear is produced by the tension of the upper portion of the capsular ligament, made taut between the superior lip of the glenoid cavity and its attachment to the head of the humerus; this shear tends to cause a transverse fracture across the head of the humerus. The upward thrust is received against the same taut portion of the capsular ligament, and modifies this trans-

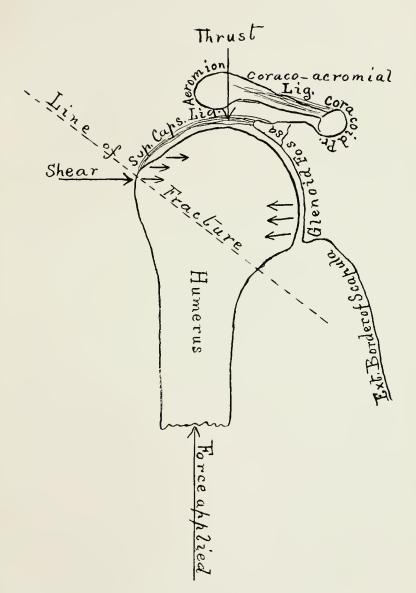


FIG. 6. Diagram illustrating the shear and thrust operative in producing a pertubercular fracture of the upper end of the humerus (often misnamed a fracture of the surgical neck) in consequence of a fall upon the hand or upon the elbow, where the force is transmitted along the shaft of the humerus.



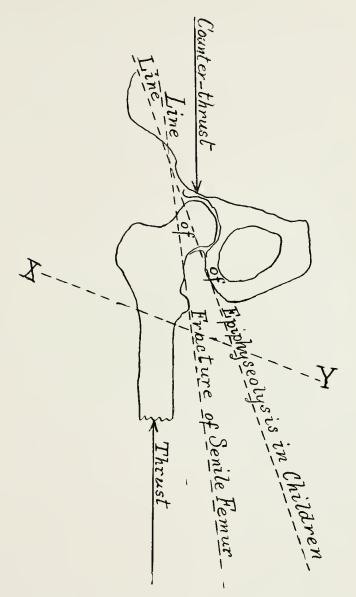


Fig. 7. Diagram illustrating the clean shearing off of the neck of the femur through a fall on the feet or on the knee. The opposite and parallel thrust and counter-thrust tend to fracture the senile femur along the line indicated, occasioning an intracapsular fracture of the femoral neck with little chance for impaction. In children the persistence of the epiphyseal cartilage affords a line of less resistance. Owing to the intrinsic structure of the bone the line of fracture may occasionally be pertrochanteric (as shown in Fig. 8, below). In young adults the internal buttresses of the upper end of the thigh-bone may cause an oblique subtrochanteric fracture along the line X-Y.



verse line of fracture to one running obliquely from above downward and from without inward, giving us the common form of pertubercular fracture of the upper end of the humerus.

The excessively rare fracture of the anatomical neck of the humerus is never a fracture by leverage, but rather a fracture by compression, while the fracture of the surgical neck of the humerus a little lower down, is generally a fracture by direct violence, as through a fall against a railing or a curb-stone; it is properly a fracture of the shaft of the humerus.

I propose to consider but one more joint in its relations to fracture by leverage, and that is the hip-joint. The fractures by leverage at the upper end of the femur are not so common as fractures by direct violence through a fall on the trochanter, and furthermore, their course is more modified than in other bones by the peculiar intimate architecture of the cancellous tissue of the femoral neck. Some have even gone so far as to enunciate the dictum that "without special predisposition fracture of the femoral neck does not occur," and they look upon one of the three following factors as an essential predisposing factor to the occurrence of fracture in this region, to wit: (1) persistence of the epiphyseal cartilage, giving us the epiphyseolysis of childhood; (2) coxa vara, the result of rachitis and leading to a lessening of the angle between the neck and the shaft of the femur; and finally, and most important of all, (3) senile osteoporosis, leading to a weakening of the "arch" of Adams along the inner, concave side of the junction of the shaft and the neck, and to resorption of the "femoral spur" of Bigelow.

Fracture of the upper end of the femur by leverage can occur from three causes: an upward thrust, through a fall on the feet or on the flexed knee; from hyperadduction, as when through a fall on the left buttock fracture of the right femoral neck occasionally ensues; and from hyperextension, when through a fall in which the sacrum strikes such an obstacle as a railing the thighs are forced into hyperextension.

In very rare cases a fall on the feet or on the flexed knee has

been known to cause a pertrochanteric fracture of the femur in the oblique line bisecting the angle between the shaft and the neck of the bone, and in still rarer instances, and I suspect these to have been cases where the aforesaid factors predisposing to fracture of the femoral neck, either did not exist or were imperfectly developed, such a fall has been known to occasion a subtrochanteric fracture of the upper part of the femoral shaft rather than a fracture of the neck, but the common result of an upward thrust on the femur sufficient to cause fracture of the bone is that very ugly and intractable form of fracture known as an intracapsular fracture of the femoral neck; and this one of specially sinister prognosis when produced by the particular cause in question, for the reason that there is little opportunity in a fracture by upward thrust for any considerable amount of saving impaction to occur.

The mechanics of this form of fracture is simple enough. The upward thrust in the direction of the axis of the thigh is arrested by the head of the bone impinging against the upper lip of the acetabulum. This arresting power of the upper lip of the acetabulum, coupled with the downward inclination of the acetabulum as a whole, occasions a shearing force to be exerted more or less directly across the axis of the femoral neck, which breaks, in the case of infants, square across, in the plane of the epiphyseal cartilage, in the case of adults with coxa vara, or in the aged with senile osteoporosis, in a line oblique indeed to the axis of the femoral neck, but more or less exactly parallel to the longitudinal axis of the body. That is to say that in fracture of the upper end of the femur by upward thrust, the shearing component of the force applied, owing to the predisposing causes in the intimate structure of the bone, is competent, by itself, to occasion a fracture of the neck of the femur; which fracture is most likely to be of the dreaded intracapsular type, and this of the worst kind, i. e., without effective impaction.

When the factors predisposing to fracture at the femoral neck are less markedly developed, the thrust and the counterthrust acting respectively upon either leg of the angle formed by the shaft and by the neck of the femur, tend to reduce the obtuseness of this angle, and the result may be a fracture through the apex of the angle, that is the line of fracture will pass through the trochanteric mass in a direction oblique from above downward and from without inward. This is the so-called pertrochanteric fracture of tht upper end of the femur; it is often, though wrongly classed as an extra capsular fracture of the femoral neck. It is only rarely produced by an upward thrust.

In young adults, where we find the fully developed normal femur, the tendency of the bone to fracture through the apex of the angle between the shaft and the neck (a pertrochanteric fracture) is obviated by the fact that the greater thickness of the bone in the pertrochanteric plane and the reinforcements of the femoral neck afforded by the "arch" of Adams, and by the "spur" of Bigelow, prevent the bone from breaking through the neck, and in such subjects the result of a fall yielding an upward thrust is either (more commonly) an upward dislocation of the hip, or (only in rare instances) a subtrochanteric fracture of the femur, with the line of fracture oblique from without inward and from below upward.

The second cause of fracture of the upper end of the femur by leverage is hyperadduction of the thigh. Pure hyperadduction will rarely occur; it is possible only when the opposite thigh is simultaneously strongly abducted. The hyperadduction which can occasion a fracture by leverage of the upper end of the femur will be an adduction combined with sufficient flexion to bring one knee in front of the other. This combined flexion and hyperadduction occurs not very infrequently in falls, especially in falls where the foot is entangled, as in cordage, in the roots of a tree or in the folds of a rug. The type of fracture which it brings about is illustrated, however, most clearly in the somewhat rare cases of fracture of one thigh by a fall on the opposite side of the body, a pure type of fracture by leverage. Kocher relates such cases as having been recorded and studied by Earle, by

Linhart, by Riedinger and by Stetter. The fracture which will occur in such cases is a pertrochanteric fracture, with the line of fissure beginning along the attachment of the upper portion of the capsular ligament (or more exactly along the attachment of that reinforcement of the upper portion of the capsular ligament which is variously known as the upper limb of Bigelow's Y-ligament, and as the "ilio-trochanteric" ligament). The mechanics of the fracture presents no very complicated features. hyperadduction puts on the stretch the upper limb of Bigelow's Y-ligament; this converts the great trochanter into a fixed point about which both the shaft and the neck of the femur are made to revolve by the adduction of the thigh. The upward excursus of the head is arrested by its impinging against the upper lip of the acetabulum, while the lateral excursus of the shaft is continued by the vulnerating force. As a result the cortical bone at the trochanteric attachment of the ligament is disrupted, while the cortical bone in the neighborhood of the trochanter minor is compressed. By the continued action of these two stresses the bone is "rent" across more or less exactly along the line of attachment of the capsular ligament. The resulting fracture is frequently spoken of as an extra-capsular fracture of the neck of the femur. The true neck of the femur is generally involved only in its posterior portion, where the capsular ligament of the hip-joint does not stretch out externally quite as far as the posterior intertrochanteric line; the fracture is properly a pertrochanteric fracture of the upper end of the femur. The forces in play I have endeavored to show in Fig. 8.

The third type of leverage that can be effectively exerted to occasion a fracture of the upper end of the femur is hyperextension. Such a leverage may be applied by a fall backward where the sacral region strikes against a projection, such as a curbstone. In such a fall the pelvis is thrust forward, and owing to the inertia of the heavy mass of the lower extremity, this thrusting forward of the pelvis is tantamount to a violent backward extension of the thigh. But just as with the fracture by hyperadduction,

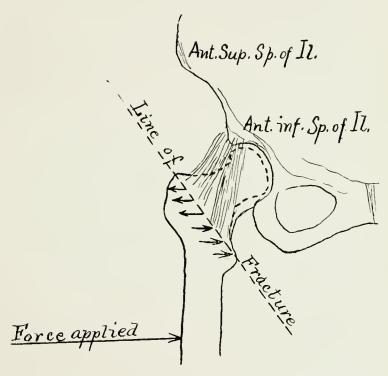


FIG 8. Diagram illustrating the fracture of the upper end of the femur through the trochanteric mass, owing to hyperadduction. The upper limb of ligelow's Y-ligament (the so-called ilio-trochanteric ligament) prevents the great trochanter from following the excursus of the femoral shaft. The small arrows indicate the play of forces upon the upper end of the thigh-bone, which is "rent" across along the line of the ligamentary attachment.

The same diagram will serve to illustrate the occurrence of pertrochanteric fracture by hyperextension. The vulnerating force need only be supposed to be applied to the anterior, instead of to the lateral surface of the femoral shaft. The resulting fracture will be in the same plane (pertrochanteric) but the fissuring, instead of starting near the tip of the great trochanter and progressing obliquely downward and inward, will start along the anterior intertrochanteric line and will proceed directly backward, i.e., perpendicular to the surface of the paper on which proceed directly backward, i.e., perpendicular to the surface of the paper on which the diagram is printed. The small arrows have no connection with the fracture by hyperextension.



the adduction was modified by a certain element of flexion, so here, the hyperextension, owing to the angle between the shaft and the neck of the femur, is modified by a certain element of outward rotation. The result of such a fall is likely to be a pertrochanteric fracture of the femur, the fracture following substantially the same lines as in the fracture by hyperadduction, just described. In this case, however, it is the lower limb of the Bigelow's Y-ligament which receives the first and principal strain, and consequently, instead of starting to yield at the upper part of the ligamentary attachment, near the great trochanter, and breaking obliquely from above downward, and from without inward, the fissure, in a fracture from hyperextension, starts from the anterior edge of the same plane, and runs directly backwards, The force acting here upon the bone is a clean shear.

It is hoped that this study of a few of the mechanical problems of some of the simpler fractures by leverage will lead those who may have cared to follow the rather dry details of the paper to lay a little more weight than is generally accorded it by surgeons on the importance of obtaining as accurate a history as possible of the accident by which a fracture has been received, and this in the interest of a diagnostic presumption which may have great value in establishing an obscure diagnosis, or at least may save the patient from painful, and sometimes decidedly disadvantageous manipulations. In a respectable proportion of cases in practice, it will be possible from the history of the accident, supplemented by the other "a priori" considerations which I have enumerated at the opening of the paper, at least to classify the injury received as a probable fracture by direct violence, a fracture by transmitted thrust, or a fracture by leverage. It has been the chief object of this paper to indicate the strength of the diagnostic presumption that a diligent and careful study of these "a priori" considerations can establish. It may be well, in closing, to emphasize one or two very practical diagnostic points which this very fragmentary study brings out:

First. Everywhere where a fracture occurs as the resultant of

the simultaneous action of a shearing force and a thrust, if the structure of the bone be uniform, the line of fracture must be oblique, and must take the line of the diagonal of the parallelogram of the constructive forces acting to produce the fracture. In all fractures by leverage in the neighborhood of a joint, if we can learn the direction of action of the wounding force and the attitude of the limb when the injury was received, we can predict with an accuracy, strictly commensurate with the accuracy of these two data, both the site and the line of the fracture which will ensue. To interpret the mechanics of a fracture by leverage, we have accordingly simply to inquire what is the shearing force at work and what is the thrust,

Second. If fracture occurs at the upper end of the humerus from a fall on the hand or on the elbow (and so very general a point can usually be learned from the patient or his friends), then the fracture must be pertubercular, and oblique from above downward and from without inward.

Third. If fracture at the upper end of the femur occur from a fall on the knee or on the foot (i. e., by upward thrust), it will probably be intracapsular, and with small likelihood of impaction. If fracture in this region occur from any other form of indirect violence, it will probably be a pertubercular (extracapsular) fracture, with probability of a saving impaction.

More extended study along these same lines will serve to bring out other diagnostic presumptions, whose truth or falsity can be proved in most cases with a minimum of discomfort to the patient and a maximum of satisfaction to the surgeon.

#### DISCUSSION

Dr. A. G. Cook (Hartford): Gentlemen, I would like to discuss the papers of Doctors Brown and Bacon together, as they are so similar.

I am exceedingly obliged to Doctor Brown. I am perfectly familiar with the ease in which dislocations can be reduced, and also familiar with removing muscle strain by refraction. I wondered I had not written that paper myself.

I knew it all the time, but it never occurred to me to put it together in words.

I should think circumstances would modify cases a little. His methods would be more apt to succeed if you saw the patient soon after the injury, — before the patient got over the shock. Then again, I use gas a great deal now because it is very easy to use. Some patients take gas and some will not.

Often the diagnosis is perfectly and clearly in mind, and I am always sure that I have the dislocation.

If you can do so just as well, it is on the whole as satisfactory to make a careful examination under ether, as you feel, I should think, more sure of your case than you would if examination had been made without an anaesthetic.

Doctor Bacon's paper is very valuable, is very scientific, and as far as it goes it is all right. The trouble is in getting the history. If you had an accurate and correct history you could argue a great deal from that, and you could form some judgment from how it happened, but you do not get a history of that kind. The history you get from the patient is almost always not worth listening to. They do not know how it happened. It happened so quickly and so suddenly. They are scared and can only tell you what they think about it.

When I was an interne in the Hartford Hospital, a patient was brought in unconscious. Those who brought him said that he had fallen from a church steeple 76 feet high. He regained consciousness on the stretcher while he was being carried to the ward. We found no broken bones, but kept him four days waiting for something to develop. Nothing developed and we were obliged to let him go.

The same day an old lady was brought to the hospital. She had gone hurriedly into her kitchen, stubbed her toe on the cat, fallen and sustained a fracture of the hip.

I was once thrown out of a carriage—the horse was running away. I did not know whether I went out head first or feet first. I had been on the water wagon for six weeks.

The history you get from the average patient is not reliable; it is not worth getting. It is really about as well to see what you can and then treat it. I do not know if the question is one entirely of the diagnosis of fractures, but I think, perhaps, I ought to say that I have treated successfully a good many fractures that I have never diagnosed, and then again I have diagnosed and successfully treated fractures that subsequent events led me to believe did not exist.

The point I was trying to make was that we are not only called upon to work in the interest of science to make an exact diagnosis, but we are called upon in the interests of our patients.

A man has an injured limb. He wants to get well. What concerns him most is, what can he do to get well, and we cannot go too far in manipulations for the sake of making a positive diagnosis. We have got to think what is the best thing to do for the individual.

Dr. W. H. Carmalt (New Haven): Mr. President, I would not say anything on this matter at all excepting I promised the committee that I would discuss the paper of Doctor Bacon.

If I should stick closely to the text, — the circumstances of the diagnosis of fracture, I should have to agree almost entirely with Doctor Cook in saying that I cannot regard the history as being of very much benefit to us in diagnosis.

I imagine that every one of us has had an example of a child tumbling out of a tree and breaking his elbow joint. These cases cannot give any history about how they struck. They get up if they can and they hollow all they can. That is all the history you get from beginning to end. You have simply to guess. I think I am entitled, perhaps, under the general term of diagnosis of fractures, to speak particularly of the X-ray. We are in the habit now, at the New Haven Hospital, of examining every case of fracture by the X-ray before anything is done to it. Of course, there are some cases in which the condition of the patient is such that we cannot use the X-ray. If we can, however, we examine by the X-ray before we attempt any reduction. There is no fracture of the radius, no fracture of the ankle or hardly any fracture of the elbow that does not present a great deal more evidence of injury by X-ray examination than we are able to get at by other diagnostic examination,— such as pieces of bone broken off, etc.

No longer ago than last week, a boy of twelve years of age was brought into the hospital with just the history I gave you. He had tumbled out of a tree or fallen over a fence and hurt his elbow. He could not tell anything about it. It hurt, that was all there was to it. As I examined it it looked to me,—I beg pardon, I did not see it when it first came in, another surgeon saw it and diagnosed a supra-condyloid fracture, and put it up at a right angle in plaster. As soon as I could I had an X-ray picture taken of it, but the X-rayist could not take anything but a lateral view, as it was at a right angle.

The X-ray was shown me, and as near as I could make out — and I felt pretty positive — it was a supra-condyloid fracture with a decided bending of the lower fragment forward, so that the surface presented forward instead of downward at the end of the bone as it should.

I studied it carefully and, making up my mind that this was the condition, I thought, instead of putting it up in that position, I would put it in an extended position rather than flexed. I therefore had the plaster taken off and the arm put up in an extended position with a weight. I then had two views taken; one with the light from above the plate underneath, the other with the plate on the inside and the light from the outside. Thus there were two views, one antero-posterior, the other lateral. The latter one was shown me first and I congratulated myself and said: "I am all right; this is a supra-condyloid fracture, and it simply requires

a little more extension in order to get the loose fragment down in line with the axis of the humerus." I looked at the other and the whole thing was changed. It was a fracture of the internal condyle with the articulating surface turned completely upwards. Looking at it above, it was as plain as it could be. The lower fragment was entirely detached. There was a great deal of swelling, which always occurs in these cases.

With that condition, the only thing to do was a cutting operation, and, on making an incision through the skin and turning the flap back, I found exactly as the X-ray said it was. The articulating surface of the internal condyle was turned completely upwards; the articulating surface of the ulna was entirely bare. I had quite a little difficulty in replacing the fragments. I was able to do so, however, and then brought the arm up in extreme flexion clear up, and held it as tight as I could. I have not looked at it since, but hope to in the course of a few days.

I am satisfied that the condition could not have been diagnosed from the history or from any but the antero-posterior view. You must have views from both directions.

The determination of fractures by X-ray must be done with a great deal of care, as it is very liable to lead to error. We must appreciate that what the X-ray gives us is a picture of a shadow. You have all thrown shadows on the wall with your fingers, and you know how the shadows are no criterion of the positions of your fingers.

With the fluoroscope, — if you get an opportunity to look at it in two or three positions it is all very well.

Any surgeon that does not take two views has a very doubtful thing to go by.

## AVULSION OF TUBERCLE OF TIBIA.

SELDOM B. OVERLOCK, M.D., Pomfret.

Stimson sums up this subject of avulsion of tibial tubercle essentially as follows: "To the tubercle is attached the ligamentum patellæ, and all cases that have been reported have been caused by the action of the quadriceps in some violent effort, usually jumping, and most of them in youths between sixteen and eighteen years of age. The frequency in youth is to be accounted for by the fact that the tuberosity is a downward prolongation of the epiphysis, and remains separated by conjugal cartilage until growth is completed.

Müller, who has written the only special article upon the subject, collected seven cases and added one of his own. To these may be added one by Keyser and one by Landsberg. The size of the fragment has varied from two to five centimetres and in one exceptional case (Richet) the rupture ran partly through the tubercle (both legs) and partly through the ligamentum patellæ."

In addition to the above reports of several cases have appeared in current literature that I have been unable to arrange here, but the occurrence of this accident is of sufficient rarity to warrant the report of the following case.

Mrs. H., 35 years of age, resident of New York City, but who has a summer residence in Woodstock, on June 16, 1906, was driving in a low carriage and holding her young child in her arms. The horse drawing the vehicle suddenly began kicking, and in order to protect the child the mother drew up her knees, strongly flexing the legs on the thighs. In this position she received the full force of the kick from the horse's foot. Evidently, from the markings on the skin, the toe calk impinged upon the anterior



Skiagraph No. I, with line of tracture traced in black



surface of the upper extremity of the tibia just at the lower border of the tubercle, making a small contused lacerated wound, the heel calks striking with less force over the patella. The soft parts about the knee were considerably swollen. The wound had been sutured by the attending physician before my arrival.

The patient was unable to extend the leg on the thigh. On examination the patella was found displaced upward and a distinct sensation of a loose body in the knee joint could be obtained. A diagnosis of probable fracture of a small fragment from the lower edge of patella was made and from fear that the knee joint might have been infected immediate operation was advised. A preoperative X-ray was not feasible, and if it had been made would not have changed the character of the subsequent operation.

The patient was removed to the hospital and a transverse incision made opening the joint. When the blood and blood clots were removed it was found that the tubercle had been broken from the tibia and drawn upward into the joint cavity by the ligamentum patellæ. The calk wound was next enlarged upward, the tubercle drawn downward, drilled and nailed in its original position. An ordinary wire nail was used, being driven into place with a mastoid mallet; no hole was drilled into shaft of tibia. The periosteum was sutured as much as was possible to aid in holding tubercle in place. The incision and original wound were sutured, a small gauze wick being placed in the latter. A long posterior splint was applied and the incisions carefully watched. Both incisions healed by first intention and the wound by granulation and without infection. At the end of three weeks a plaster cast was applied extending from the toe to the buttock. Skiagraph No. I shows position of parts at this time with nail in situ and line of fracture.

The cast was removed at the end of ten weeks from time of injury and patient allowed to flex leg gradually by walking aided by passive motion. She fully recovered use of limb and has been constantly walking upon it since.

The second series of skiagraphs were done May 2, 1907, (Ski-

agraph No. II) nearly eleven months after the injury, showing full flexion of leg on thigh. They also show that the nail is becoming loosened in its socket and can now be removed, as it has fully accomplished its purpose.

This case has been classed under "Avulsion of the Tubercle of the Tibia," but it seems to the writer it should rather be called fracture of tubercle of tibia by direct violence. The patient was older than those in whom avulsion has usually occurred; the ephiphysis at this time of life is thoroughly joined to the shaft of the bone. The blow in a direction upward and backward struck the tubercle, literally breaking it from the shaft of the tibia. It is true, the ligamentum patellæ was tensed when the leg was flexed on the thigh, but it seems to the writer that it may be fairly contended that the force of the blow was the principal factor in producing the injury, and that in this particular case it is a fracture rather than an avulsion of the tubercle.



Skiagraph No. II, taken eleven months later, full flexion of leg at knee.



PAPERS READ AT COUNTY MEETINGS.



# Papers Read at County Meetings.

LIA	DTI	ORD	CO	TINT	TV

October 23, 1906.

President's Address

The Relations between the General Practitioner and the Specialist.

Dr. Frederick S. Crossfield

Papers and Discussions

Indigestion — Its Significance and Diagnosis Dr. Henry F. Stoll

The Bier Treatment in Certain Inflammatory Conditions

Dr. Philip D. Bunce

Anatomy and Surgery of the Mastoid Dr. M. Advanced Age as a Contra-indication to Surgical Operations.

Dr. M. H. Gill

Dr. O

Dr. Oliver C. Smith

Climate and Hay Fever

Dr. Charles D. Alton

The Utility of the Cystoscope

Dr. Charles S. Stern

Clinical Cases

Report of a Case of Myotonia

Contract Work

Dr. Edwin A. Down

Dr. Henry G. Varno

April 2, 1907.

Papers and Discussions

Progress of Stomach Surgery with a Report of Cases

Dr. John B. Boucher

Post-Operative Pneumonia

Dr. A. M. Rowley

Sporadic Trichinosis with Report of a Case Dr. W. R. Steiner Treatment of Posterior Displacements of the Uterus Dr. P. H. Ingalls

NEW HAVEN COUNTY.

October 25, 1906.

Serum Therapy

I. General Considerations Dr. D. M. Lewis

II. Recent Advances in Treatment of Bacterial Diseases

Dr. Charles Engelke

III. Serum Treatment of Non-Bacterial Diseases \_ Dr. N. R. Hotchkiss Dissertations

Dr. E. D. Hall

Dr. P. T. O'Connor

Dr. William Sprenger

## April 25, 1907.

Brain Tumors

I. General Considerations

Dr. R. E. Peck

II. Ophthalmic Findings

Dr. E. M. McCabe

III. Surgical Treatment

Dr. Frank Hartley, New York City

Dissertations

Dr. John D. Freney

Dr. Charles A. Monagan

Dr. Alfred G. Nadler

### NEW LONDON COUNTY.

October 4, 1906.

Dissertation

The Non-Flesh Dietary in Health

Dr. N. P. Smith

April 4, 1907.

Reading of Annual Dissertation

Pulmonary Tuberculosis

Dr. J. H. Evans

FAIRFIELD COUNTY.

October 9, 1906.

Vice-President's Address

Progress of Surgery

Edwards M. Smith

Reading of Papers

Preventive Medicine

Leander P. Jones

Early Symptoms of General Paresis

Dr. Allen Ross Diefendorf

Typhoid Fever

Dr. Dwight B. Bean

April 9, 1907.

President's Address

Medical Citizenship

Dr. William S. Randall

Reading of Papers

The Effect of the Medical Examiners' Work on the Profession

Dr. S. M. Garlick

A Week's Experience with the Mayos

Dr. E. J. McKnight

The Question of the Fee for Medical Insurance Examinations

Dr. David Chester Brown

Danger Signals from the Skin Dr. L. D. Buckley, New York City

#### WINDHAM COUNTY.

November 8, 1906.

Address by the President

Diagnostic Value of Inspection and Palpation in diseases of Stomach and Intestine

Reading of Reports and Records by the Clerk

Paper

Flat Foot and Fitting of Shoes

Dr. Ansel G. Cook

Paper

Some Points of Contact between Otology and General Medicine,
with illustrated cases Dr. Frank B. Sprague, Providence, R. I.
Report of Interesting Cases

Dr. Kent

Dr. Guild

Dr. Overlock, and others

April 25, 1907.

Paper

A Food Poison

President White

Brief Paper

Fractures and Dislocations

Medical Legislation

Pres. Higgins of the State Med. Society
Paper

Peritonitis and Its Treatment
Poliomyelitis with Illustrated Cases
Some of the Responsibilities of the Medical Profession
Rienzi Robinson

#### LITCHFIELD COUNTY.

October 9, 1906.

What Would You Do, or rather, What Should I do?

Dr. G. D. Ferguson

Remarks on the Establishment of a Colony for Epileptics in Connecticut

Fistula in Ano—Causes, Diagnosis, and Treatment

The Report of a Case

Dr. Irving L. Hamant

Appendicitis

Dr. E. R. Kelsey

April 23, 1907.

Papers by Members of the Association

I. Retro-Displacements of the Uterus Dr. N. B. Saunders
II. Some Suggestions in Minor Surgery Dr. Charles I. Page
Papers by Invited Guests

I.	Epidemic Cerebro-Spinal Meningitis in H	
II.	1904-1905 Diagnosis and Treatment of Uterine Hemory	Dr. Walter R. Steiner
11.	Diagnosis and Treatment of Oterme Hemory	Dr. Otto G. Ramsay
III.	Intestinal Injury and Obstruction	Dr. E. J. McKnight
		2.1, 2. J. 1.20g.i.
	MIDDLESEX COUNTY.	
	October 18, 1906.	
Clinica	1 Conference	
Treatment of Diseases and Disorders of the Heart  Leaders: Drs. Hubbard, Bush, and Lawson		
Papers		ard, bush, and Lawson
I.	Two Cases of Spontaneous Cure of Epilepsy	Dr. C. E. Stanley
II.	A Case of Meniere's Disease	Dr. J. H. Kingman
III.	The Early Symptoms of Dementia Paralytica	
	, ,	Dr. A. R. Diefendorf
Papers		
I.	The Belt Treatment of Enteroptosis	Dr. K. C. Mead
II.	Some Points in the Treatment of Pneumonia	Dr. M. C. Hazen
III.	The Use of Alcohol in Medicine	Dr. F. S. Smith
IV.	The Profession	Dr. C. A. Sears
	April	
Papers	April 11, 1907.	
I.	Microcephalic and Megalocephalic Idiocy	with specimen
	cases	Dr. Diefendorf
II.	Epilepsy, with Special Reference to the Colo	
		Dr. Keniston
III.	A Vade-Mecum Pocket Case	Dr. Lawson
IV.	Notes on Newer Remedies	Dr. Mead
V.	Some Early Practitioners of Haddam	Dr. Hazen
	TOLLAND COUNTY,	
	October 16, 1906.	
Essay	October 10, 1900.	W. L. Higgins
-	nd Treatment of Epileptics	Dr. Edwin A. Down
	1	z. zami i. bowi
	April 16, 1907.	
	Prophylaxis	E. P. Flint
The Ve	enereal PJague	C. B. Newton

SPECIAL PAPER



#### SPECIAL PAPER.

[Our society has been fortunate in having among its members some who have devoted much time to the history of medicine in this State. Most of their contributions have been published in past transactions of this society. Among them we may name:

(1) Sumner: Address on the Early Physicians of Connecticut.

Trans. Conn. State Med. Soc., 1851.

(2) Blakeman: Early Physicians of Fairfield County.

Trans. Conn. State Med. Soc., 1853.

(3) Woodward: A Historical Account of the Connecticut Medical Society.

Trans. Conn. State Med. Soc., 1859.

(4) Woodward: Biographical Sketches of the Early Physicians of Norwich.

Trans. Conn. State Med. Soc., 1862.

(5) Sumner: The Early Physicians of Tolland County.

Trans. Conn. State Med. Soc., 1871.

(6) Bronson: Historical Account of the Origin of the Connecticut Medical Society.

Trans. Conn. State Med. Soc., 1873.

(7) Mathewson: Historical Sketches of the Original Members of the Middlesex County Medical Society.

Trans. Conn. State Med. Soc., 1877.

- (8) Russell: Early Medicine and Early Medical Men in Connecticut. Trans. Conn. State Med. Soc., 1892.
- (9) Bacon: History of the Connecticut Medical Society.

Ibid.

- (10) Hoadley: Some Early Post-Mortem Examinations in Connecticut.

  1bid.
- (11) Hazen: Centennial History of the Middlesex County Medical Association.

Ibid.

(12) La Pierre: The Conception of our State Society.

Trans. Conn. State Med. Soc., 1893.

To these we may add the following contributions which have appeared elsewhere:

- (13) Bacon: Sone Account of the Medical Profession in New Haven. History of the City of New Haven, New York, 1887, p. 260.
- (14) Sumner and Russell: Sketches of Physicians in Hartford in 1820 and 1837.

Hartford, 1890.

(15) Eliot: The Origin of the New Haven County Medical Association.

(In this pamphlet is found a valuable list of members of the New Hayen County Medical Association with biographical notes.)

New Haven, 1902.

(16) Root: History of the Hartford County Medical Association.

Hartford, 1893.

(17) Proceedings of the Fiftieth Anniversary of the Hartford Medical Society.

Hartford, 1896.

Bronson: Medical History and Biography.
 N. H. Hist. Soc. Papers, New Haven, 1877, II, p. 239.

(19) Wordin: The Connecticut Medical Society. The New England States, Boston, 1897, II, p. 683.

Also Yale Medical Journal, 1897, III, p. 363 and 1898, IV, p. 19.

(20) Kendall: The Litchcfield Medical Association.

Yale Medical Journal, 1901, VIII, p. 95.

The following paper by Dr. Miner C. Hazen was read by him before the Middlesex County Medical Association. It has been our custom of late, to only print, in the Transactions, papers read before our State Society. Exception has been made in this case, however, as Dr. Hazen's paper is of historic interest and deserves preservation along with the other contributions above recorded.— Walter R. Steiner.]

### Some Early Practitioners of Haddam.

#### MINER C. HAZEN, M.D., Haddam.

The two learned and liberal professions Theology and Medicine are more akin than we are apt to realize — Theology is the science of God — of divine things. Medicine relates to the care and cure of man — God's creation and care. It naturally follows that in the history of the world the two professions should be found together and often merged in one, — the priest is also the physician. A devout and benevolent mind is a sine qua non in either of these sacred callings. If "the undevout astronomer is mad" how much more of a misfit is he who enters either of these professions without the fear of God and love for his fellow men in his heart?

The magicians of Egypt in the time of Moses were, no doubt, the famous physicians of that country and time, and accomplished by their enchantments what many modern celebrities among medical men now do.

The priest diagnosed leprosy among the Hebrews but could not cure it.

The grand old prophet Isaiah prescribed for the carbuncle of King Hezekiah, and applied the poultice that cured the whining king. His life was prolonged fifteen years. During this time his son, Manasseh, was born, who proved to be a cruel, reckless ruler. He caused the martyrdom of the good prophet, his father's friend, now one hundred years old. Jewish tradition says he caused the body to be placed in a hollow tree and sawn asunder.

Our Great High Priest was the ideal — and honored the healing art by being called the Great Physician.

Luke, the beloved physician, historian, and the faithful disciple, was an eminent example of the union of the two callings.

Hippocrates, the father of medicine, belonged to the guild of priest physicians.

- Since the establishment of the Christian faith, the priest, especially in sparsely settled localities, has not only been the

spiritual advisor, but to the best of his judgment has prescribed for their physical ills.

The Royal College of Physicians was founded in 1518 by the munificence of Thomas Linacre, a priest and distinguished physician.

It is a high compliment to the good sense and judgment shown by the early colonial fathers that they trusted their learned men in Theology and Medicine instead of following old wives' fables and countenancing quackery.

Dr. Gurdon W. Russell in his "Early History of Medicine and Medical Men in Connecticut" mentions the priest doctors of that time, among whom most prominent was Rev. Gershom Buckley of Hartford County, who was more given to the practice of medicine than the pastoral work of the preacher. Dr. Jared Elliott combined both professions with the greatest success.

One of the most eminent and learned men of the clerico-legal practitioners of this early time was Phineas Fiske, for twenty-five years the pastor of the Congregational Church at Haddam.

Owing to the loss of the church records of this period there is great difficulty in obtaining information regarding Doctor Fiske, especially his medical side. I am greatly indebted to Rollin U. Tyler, Esq., of Haddam for many facts of interest in regard to Doctor Fiske — who though generally known as a scholar and minister was also an eminent practitioner as well as teacher of medicine.

Phineas Fiske was the oldest child of Dr. John Fiske, and was born at Milford, Conn., Dec. 2, 1682. His father was then a resident of Wenham, Mass., and a medical practitioner. He was a surgeon in the Indian war and was seriously wounded, by reason of which his taxes were abated by the general court. His mother was probably visiting relatives in Milford at the time of Phineas Fiske's birth. Doctor Fiske moved to Milford in 1694 and was a prominent physician of his time. He was naturally interested in Yale, the new collegiate school, as was his pastor, Rev. Samuel Andrew, and it was natural that his son be sent to Rector Pierson as one of his first pupils.

The son, Phineas, returned to Milford after graduating in 1704, and pursued his theological studies with Rev. Mr. Andrew, and his medical studies with his father, — a process of natural absorption.

After Mr. John Hart gave up the tutorship at Yale, which

was then at Saybrook, Mr. Fiske was appointed his successor. After serving a year, the rector of the college — Mr. Pierson — died at Killingworth, now Clinton, March 5, 1706, and now responsibilities rested on the young tutor. Part of the students were at Milford under Rev. Mr. Andrew and the larger part at Saybrook under the care of the young Mr. Fiske. An additional tutor was appointed in September at Saybrook, and under this arrangement the college was continued until September, 1813, — a larger consecutive service than any of his successors in the first century of the college history. During six years of this time there was no resident rector, and the senior tutor had the responsibility of the administration of the affairs of the college.

President Stiles in his funeral sermon at the death of Rev. Chauncey Whittemore incidentally says: "After the death of Rector Pearson and while the college was at Saybrook and destitute of a resident rector, the Rev. Phineas Fiske and Rev. Joseph Noyes were the pillar tutors and the glory of the college." The historian Trumbull, also, in writing of the graduates at Saybrook says: "Notwithstanding the infant state of the college, — numbers of them through their native strength of genius and the instructions of those excellent tutors John Hart and Phineas Fiske became excellent scholars."

Rev. Dr. Samuel Johnson (Yale, 1704) mentions in his biographical memoranda that the subjects instructed in Mr. Fiske's class were logic, metaphysics, and ethics.

While Mr. Fiske was still in the tutorship he was licensed to preach and supplied the pulpit of Rev. Mr. Hobart, the aged and infirm first pastor of the church at Haddam, the next settlement north of Saybrook. He was installed as colleague of Mr. Hobart January, 1714. The aged pastor died suddenly at the age of eighty-three, having attended church in the morning and died while sitting in his chair. Mr. Fiske continued in sole charge for twenty-five years until his death at the age of fifty-six.

The only publication of Mr. Fiske is the election sermon before the General Assembly, May 12, 1726. Text, Joshua 1:17, "The Good Subject's Wish," or "The Desirableness of the Divine Presence with Civic Rulers." The most notable passage is a glowing tribute to Governor Salstonstall who was a minister.

Mr. Fiske married July 27, 1710, Lydia, third daughter of Ensign John Pratt, Essex. She died in Haddam July 14, 1765, aged eighty-three. Their children were six daughters and one son.

The son graduated at Yale in 1743, and served as tutor with distinction. One of the daughters married Rev. Moses Bartlett (Yale, 1730), who was pastor and physician at Chatham, now Portland. Doctor Field, the historian of Middlesex County, says Mr. Fiske's talents were "solid rather than brilliant." Doctor Field had in his possession a manuscript volume by Mr. Fiske containing a "general view of the sciences."

Beside the onerous duties of pastor to this scattered flock Doctor Fiske practiced medicine to some extent, especially receiving consultations from various persons in adjoining and sometimes distant places of settlement. He especially was a teacher of medicine, which was an important and urgent need of that time. Among his pupils were Drs. John Arnold of Middletown and his brother Joshua Arnold of Haddam, also Dr. Hezekiah Brainerd of Haddam, an eminent physician of that time. He was a colonel of militia, a magistrate, and a deacon of the church. He was prominent in the inoculation of smallpox.

Doctor Field says of Mr. Fiske, "He was a finished scholar, a man of piety and wisdom, sound in the faith, pleasant in his intercourse with his people, plain in reproof, beloved and respected in life, and his memory blessed."

Mr. Fiske was received by the people of his parish with enthusiastic welcome. Rev. Mr. Lewis in his historical notes says, "Only words of warmest praise are spoken of his services to the church." This modest, scholarly, philanthropic man settled quietly down to his life work, content to serve God and his fellow men in his plain way. His labors were appreciated, his salary was raised, the congregation so increased that it was necessary to enlarge and repair the meeting-house, and later it was found desirable to build a new and larger one with "seats in the galleries." Everything indicates that this was a very prosperous period in the history of the church and colony. The spirit of this ideal pastor and teacher inspired his students of theology and medicine, and he was a universal favorite and a delight to all the people.

It is to be noted that he was also tutoring young men in preparation for college, and among these was David Brainerd, the missionary, who for several months previous to Mr. Fiske's death was a member of his family. It was Mr. Fiske who advised Brainerd to "abandon young company and associate with grave elderly people." The wisdom of this counsel is questioned by modern critics, — without it we should never have had the missionary,

David Brainerd. No doubt the six months' tutoring with Mr. Fiske was indispensable to the character of this man who moved the whole religious world. In the midst of this important unfinished work Doctor Fiske was suddenly called away. The cause of his death does not appear, but it was sudden and the warm-hearted people were shocked as they contemplated their great calamity in the loss of their counselor, teacher, friend, physician, and priest, and as he suddenly like Elijah disappeared in the heavens they heard angels' wings, and exclaimed as did the lonely prophet, "My father, my father, the Chariots of Israel and the horsemen thereof."



OBITUARIES.



# Henry A. Carrington, M.D., Bristol.

ARTHUR S. BRACKETT, M.D., Bristol.

Some one near his own age who knew him in his prime should tell you of Henry A. Carrington's life and work, for it is not fair to his memory that one who knew him only during the last ten years of his life, after he had reached threescore years and ten, should write of the years before, crowded with good and kindly deeds.

When I first met him, although seventy years old, his vigor of body and mind was unabated. His eye was bright, his mind keen, youthful. He was watching as eagerly as ever the development of the art he loved and was as ready as ever to adopt any innovation which appealed to his judgment, ripened by 50 years' experience.

Henry Austin Carrington was born in Milford, Conn., Sept. 2, 1826, where he received his preparatory education. Entering Harvard University he graduated from the Medical School in 1848. After graduation he was in Central America for several years. On his return to this country he settled in Derby, Conn. Removing thence to Hyde Park, near Poughkeepsie, he changed his residence to Lansingburg, N. Y. Here he built up an extensive and most trying practice. In 1860, in order to escape the wearing routine of a busy country practitioner he removed to New Haven. Here he was active and successful not only in professional lines but also in the civic and religious life of the city.

His practice was extensive and for several years he served the community as health officer. On coming to New Haven he joined the College St. Congregational church, where he was a deacon for many years. Prompted by his own perennial youthfulness and fondness for the society of the young he identified himself actively

with the Sabbath school, of which he became superintendent after teaching one of the largest Bible classes of the city.

One who knew him during these busy and successful years should have written of his life's work. While in Derby he married Miss Grace Tomlinson. Their children were: H. O. Carrington of New York City, Prof. Herbert D. Carrington of Washington University at Seattle, and Julia Isabel, wife of W. T. Shepard of Buffalo, N. Y. His wife died in New Haven in 1889. In 1891 he married Mrs. Andrew Shepard of Bristol, to which place he removed.

Here he had expected to live at ease. No man, however, of his skill in medicine and charming personality, which inspired the respect of all who knew him, could long be free from the demands of the community. Consequently he was soon again in active practice and his advice was often sought in consultation.

At once he took his place in the civic life of the town, being elected the fourth warden of the Borough of Bristol, after only three years of residence. He was also called upon to serve as first committeeman of our largest school district. Here as in New Haven he was active in the church and Sabbath school.

In 1905 he fell and broke his arm, an accident which doubtless accelerated the progress of arterio-sclerosis. From this time he failed, and succumbed to chronic nephritis on June 8, 1906.

As a physician he was successful, and although graduated at Harvard under Dr. Oliver Wendell Holmes, he was not at all a therapeutic nihilist. His library shelves were a very good indication of the way he was ready to appropriate the best from all schools and times. Hippocrates, Sydenham, Hughes the homeopath, Osler, Castro on Dosimetry, Balfour, Loomis, and Scudder's Eclecticism stood peaceably side by side. He was a thorough believer in the efficacy of many of our American flora and was glad to learn of them from any source. He was the master of a very elegant and forceful English style and wrote often for medical magazines. In 1859 his article on scarlet fever was "awarded a prize essay by the Medical Society of the State of N. Y." and

all through his life he contributed to the medical press. It is significant that his last published article, unfinished on account of advancing feebleness, was a keen and witty retort in defense of the local medical fraternity which was very bitterly and unfairly attacked when our local fee table was readjusted.

The community loved and honored him as a man for the bright, unfailing sympathy he gave to all, and for his genuine unassuming Christian character, and it will be long before his colleagues will cease to miss him.

### Franklin Wheeler, M.D., Farmington.

THEODORE G. WRIGHT, M.D., New Britain.

Dr. Franklin Wheeler was born in Avon, Conn., May 16, 1827.

In 1839 at the age of 12 years he entered the boarding school of Simeon Hart of Farmington.

In 1843 he entered Yale College and in 1847 received the degree B.A. from that institution.

In 1852 he was graduated from the College of Physicians and Surgeons in New York City.

In 1853 he practiced one year in his native town, Avon.

In 1854 he located in Farmington, where he remained 53 years, having an extensive and remunerative practice.

For more than forty years he was the attending physician at Miss Porter's famous boarding school, where the number of pupils was never less than one hundred, and for more than forty years no death occurred among the pupils there.

In 1867 he received the degree of M.A. from Yale College.

In 1889 his wife, whose maiden name was Emily Cowles, daughter of William L. Cowles of Farmington, died, leaving no child.

In 1891 he was elected President of the Farmington Savings Bank and held that office until his death.

In 1902 he retired from the practice of medicine after fifty years of professional activity.

In 1905 he was stricken with paralysis, from which he never fully recovered.

He died at his home in Farmington, February 10, 1907, being nearly eighty years of age.

About a week before his death he was found in his room unconscious and did not rally from that condition.

His father, grandfather, and great-grandfather were born in Avon, and spent their lives there. They were respected and honored citizens.

He was the son of Seth Wheeler and Harriet Woodford Wheeler.

He was a member of the Congregational church and Ecclesiastical Society of Farmington and was actively interested in the affairs of the church and society.

He was a member of the Hartford County and Connecticut Medical Society during his professional life and until his death, and was respected and highly esteemed by his professional brethren as he was by the community where he lived so many years. Dr. Wheeler had the happy faculty of making many friends, and, so far as I know, of making no enemies. It was my good fortune to know him somewhat intimately for thirty years or more, and I have never met a more congenial member of the medical profession. I was occasionally called in consultation by him and became acquainted with his patrons. In his absence and in his illness, while I lived in the adjoining town I attended to his practice, and was present when his wife died.

His connection with Miss Porter's school for so many years gave him an extensive acquaintance among the families of many of the most noted men of our nation who were patrons of that institution.

He outlived most of the friends and acquaintances of his day and generation who in the prime of his life were his most loyal and devoted companions, and in his declining years he must have greatly missed their friendly greetings. Unfortunately he had no children and no near relatives to cheer and comfort him as he retired from active life.

"The days of our years are threescore years and ten; and if by reason of strength they be forescore years, yet is their strength labor and sorrow; for it is soon cut off and we fly away." It has been said by them of old time that "No prophet is accepted in his own country" and that "A prophet is not without honor save in his own country and in his own house"—but the case of Dr. Wheeler shows that a physician may be "accepted" even in his own town and its immediate vicinity—for Dr. Wheeler was accepted, respected, esteemed, beloved, and honored in his own town and in his own county and state and did not need to seek a field of labor among strangers.

### William Myron Weaver, M.D., Hartford.

E. TERRY SMITH, M.D., Hartford.

William Myron Weaver, a member of the Hartford Medical Society, the Hartford County Medical Society and of the Connecticut Medical Association, died at Central Islip, Long Island, N. Y., December 16, 1906, the result of a long illness brought on by overwork and nervous prostration. Dr. Weaver was born in Worcester, Mass., July 2, 1871, the son of Thomas Snell and Delia (Chipman) Weaver. His schooling was obtained in the public schools of Worcester, New Haven and Hartford, graduating from the Hartford Public High School in 1888. He immediately turned his attention to newspaper work and for two years was a reporter upon the Hartford Post, going from there to the New Haven Register, where he made a reputation for himself as a writer in varied fields of music, art and literature, in addition to his work as a reporter.

Convinced that he had adaptability for a professional life, he entered upon the study of medicine in the Yale Medical School, at the same time carrying forward his work as a newspaper reporter. This he continued for three years but was forced to abandon the newspaper for his studies. He graduated from the Medical School in 1897, but was unable at once to take up the practice of his profession, and returned to newspaper work and for several months, during the Spanish-American war, was employed by the New York Evening Sun, his capability sending him to the news desk after a short period of reporting, and he had supervision of the war news until its close. He soon after had opportunity to become an interne at the Lackawanna Hospital, in Scranton, Pa., and after serving there he took a short course in

St. Christopher's Hospital for Children in Philadelphia. Thus equipped for his profession he began practice in Hartford, in 1901, the home of his youth, and at the time of his breaking down in the spring of 1905, he was enjoying an increasingly large practice. In the spring of 1904 he had, and diagnosed, the first case of Spotted Fever of the epidemic of that year. Dr. McKnight saw the case in consultation with him and agreed with him on the diagnosis.

He was gifted with capacity for study, having an unusual memory and the habit of the scholar to adjust and balance his acquirements. He was successful in his general practice as a physician, and although he entered upon his studies with the thought of devoting his professional life to surgery, it was otherwise ordered. He made many friends in all walks of life, his long experience with newspaper work serving to give him a large acquaintance, and his fine qualities of mind attracting to him men of scholarship and refinement. At the time of the abandonment of his practice he was secretary of the Hartford County Medical Society. His ideas of professional ethics gave him a broad comprehension of what the life and practice of a physician should be, and he was continually equipping himself hy study for the best that he could give.

He is survived by his wife, formerly Miss Frances Bartlett of New York, his father, mother, two brothers and one sister.

### Timothy H. Bishop, M.D., New Haven.

SAMUEL D. GILBERT, M.D., New Haven.

Dr. Timothy H. Bishop was born in New Haven, March 8, 1837, and died in the same city December 25, 1907. He was the son of Ebenezer H. Bishop, M.D. and Hannah M. Bishop. His father graduated from Yale College in 1829, and had an extensive practice in New Haven, largely in the Obstetric line, among the poor of the city, by whom he was much beloved. Dr. Bishop came of honored ancestry, being a lineal descendant of Gov. Eaton of New Haven and of John Bishop of Guilford, from which town the Bishops moved to New Haven.

Dr. Timothy H. Bishop was educated at the famous Russell's Military School, from which he entered Yale College with the class of 1859, but left at the end of freshman year to attend the Yale Medical College, from which he graduated in 1860. After his graduation, Dr. Bishop went abroad and continued his medical studies in Edinburgh and Paris, returning to this country at the outbreak of the civil war. He entered the army as an assistant surgeon, and was stationed at Alexandria, Virginia, until a late period of the conflict, when he returned to New Haven and became one of the attending surgeons of the U. S. Knight Hospital, afterwards merged into the New Haven Hospital.

Had he lived a few months longer, he would have completed twenty-five years service as secretary of that institution, of which he was also one of the consulting staff. Owing to poor health Dr. Bishop retired from practice some thirty-five years since. He was a member of the Society of Colonial Wars, the Society of the Cincinnati, and the American Archæological Society. He was a member also of the Connecticut Medical Society and was the

senior member of the New Haven Medical Association at the time of his death. Dr. Bishop was an attendant of Trinity Episcopal Church. He left a widow, daughter of the late Rev. Dr. Bennett of Guilford, Conn., two sons, and one daughter. The eldest son, Dr. Louis B. Bishop, is a member of this Society, graduating from Yale College in the class of 1886 and from the Yale Medical College in 1888, in which he is now instructor in Pediatics.

Dr. Bishop was a refined and cultured gentleman, who in easy circumstances gave largely to charity, without ostentation. He will be greatly missed by the poor and needy, whom he always remembered. The doctor led a quiet, retired life, devoted to his books and family friends, but was interested in public affairs, and particularly in the New Haven Hospital.

To know Dr. Bishop well, as was the privilege of a chosen few, was a pleasure, and by those who knew him even slightly, his cheerful face and friendly ways will be long remembered.

## Walter Judson, M.D., New Haven.

ALVERD E. WINCHELL, M.D., New Haven.

Dr. Walter Judson, after a successful practice of his profession for thirty-six years in New Haven, died in this city December 24, 1907, of cardiac apoplexy. He was a descendant of an old colonial ancestry, born in Bristol, Connecticut, May 1, 1840. He graduated from Yale in 1864, taking the degree of A.B. and A.M., and obtained his medical degree from the College of Physicians and Surgeons of New York City in 1870. After serving as an interne in Bellevue Hospital, he located in New Haven, where he practiced his chosen profession until his death. For a number of years he served as visiting and consulting physician to the New Haven Hospital. Dr. Judson was a member of the American Medical Association, the Connecticut and New Haven County Association and the New Haven Medical Society. In 1874 he married Miss Elizabeth Mallett of New Haven, by whom a son was born in 1881, who died in 1883. Mrs. Judson died in 1889. In the death of Dr. Judson the city lost a highly prized and useful citizen.

### Frank Edwin Beckwith, M.D., New Haven.

GUSTAVUS ELIOT, M.D., New Haven.

Frank Edwin Beckwith was born in Norwich, Connecticut, February 20, 1848. He was the youngest son of the six children, three sons and three daughters, of Elisha Way and Hannah Amanda (Murray) Beckwith. His ancestors were of English and Scotch origin, and were among the early settlers of New England. In New London County the Beckwith family has had many representatives of influence and prominence. For several generations there was at least one physician in his family, and in one generation there were three.

He received his preparatory education at the Norwich Free Academy, and in the winter of 1868 and 1869 attended lectures at the Bellevue Hospital Medical College in New York. The next winter he was matriculated at the Jefferson Medical College, in Philadelphia. The following year he returned to New York, and in 1871 graduated from the College of Physicians and Surgeons, the Medical department of Columbia College, now Columbia University, in the city of New York. During this term he registered as his preceptor the Jefferson Medical College. The title of his graduation thesis was Stray Notes of Surgical Cases with Remarks.

Among his classmates who have lived in Connecticut were the late Charles W. Chamberlain, for several years the Secretary of this Society, Henry S. Noble, superintendent of the Connecticut Hospital for the Insane, and C. H. Atwater, of Wallingford. Distinction in the department with which he became prominently identified was gained by several members of his class, including James P. Boyd, of Albany, Clement Cleveland, of New York, E. W. Cushing, of Boston, Charles Jewett, of

Brooklyn, and Mathew D. Mann, of Buffalo. A few of his other fellow students who afterwards became well known were the late Thomas R. French, of Brooklyn, and John O. Roe, of Rochester, laryngologists, Francis P. Kinnicutt and the late Thomas A. McBride, of New York, A. W. Suiter the sanitarian of Herkimer, N. Y., and Edward L. Trudeau, of Saranac Lake.

During his student days the faculty of the College of Physicians and Surgeons included Henry B. Sands, John C. Dalton, Samuel St. John, James W. McLane, Thomas M. Markoe, Alonzo Clark and T. Gaillard Thomas. It is not surprising that many of the pupils of such a famous and inspiring group of teachers should have become famous themselves, and exercised a wide influence both as practitioners and as teachers.

Aftr graduation he served eight or nine years as resident physician in the Nursery and Child's Hospital, at Lexington Avenue and Fifty-first St., New York. Here he had an extensive experience in obstetrics, and became familiar with the diseases prevalent among infants and children.

He also became associated with the corps of instructors of the College of Physicians and Surgeons, and conducted the "college quiz" on obstetrics, being officially designated as Examiner in Obstetrics and Diseases of Women and Children. He was very popular with the students and was regarded by them as one of the best of their instructors. In 1875 he was appointed Lecturer on Diseases of Children. During the spring term for several years he taught classes in gynecology. In connection with his other duties he assisted the students in the management of those cases, assigned to them by the Professor of Obstetrics, which proved to be difficult or complicated.

Having had such unusual opportunities for clinical observation, and such extensive experience in teaching, it was not strange that promotion came to him, and in 1880 he was elected Professor of Obstetrics and Diseases of Women and Children in the Medical Department of Yale University, in succession to Dr. Stephen G. Hubbard.

Before commencing his new work he spent several months in Europe visiting hospitals and studying methods of medical teaching. In the summer of 1881 he removed to New Haven, and took up his residence at 139 Church Street, between Chapel and Court Streets, which continued to be his home until his death.

He continued to occupy the professional chair until 1885, when he resigned, and Dr. James Campbell, of Hartford, was selected as his successor. He was immediately made Professor of Clinical Gynecology, but this position also he resigned in 1890. He was respected and beloved by the students. His teaching was clear and thorough, and he was always ready cheerfully to make explanation or to give assistance whenever called upon.

Shortly after his arrival in New Haven he was elected an attending physician to the New Haven hospital. Subsequently he was made Attending Gynecologist, and when, after several years, he resigned this position he was made a member of the consulting staff. He was for many years one of the directors of the hospital, and since 1904 had been a life member of the Hospital Society. He was also for many years attending physician to the New Haven Orphan Asylum.

By the profession of New Haven he was received with great cordiality. He declined to enter general practice, but was called frequently in consultation, not only in the city, but also in surrounding towns. In gynecological cases he soon acquired a reputation for extreme conservatism, especially with reference to advising and performing operations. When convinced that operations were necessary, he performed them with skill and celerity. He was a follower of Marion Sims in making much use of silver wire as a material for sutures, and of Lawson Tait in believing that antiseptic drugs might often be dispensed with if strict personal cleanliness were constantly observed. In obstetrical cases his experience had been extensive, and he showed great adroitness in their management. Especially in operative obstetrics he exhibited wonderful dexterity.

In later years, attracted by its broader field for study, he was

drawn somewhat into general practice. Here he was distinguished by unusual punctuality, kindliness of manner, prudent conservatism, cheerful optimism, thorough investigation of his cases, a cautious and somewhat limited use of drugs, and a painstaking regard for hygienic conditions.

His influence upon medical practice in this vicinity was noteworthy. Of especial influence and importance were his teachings and advocacy of the desirability and necessity of the immediate repair of lacerations of the perineum occurring during parturition, and also of the repair of lacerations of the cervix uteri.

He manifested an active interest in many medical societies. In 1882 he became a member of the New Haven Medical Association, was elected its president the next year, and re-elected in the following year.

In October, 1881, he was elected a member of the New Haven County Medical Association, and of the Connecticut Medical Society. For the annual meeting of the latter organization in 1882, he prepared a paper entitled Thomas's Operation, Laparoelytrotomy, which, with several illustrations, was published in the Proceedings of the society, and also in the New England Monthly. At the annual meeting in 1884 he made some remarks upon a case of ulcerating mucous patch of the labium, illustrated with a colored drawing, and the volume of the Proceedings for that year also contains his report of a case of Rachitis and Atalectasis.

In 1885 he was appointed dissertator for the next meeting, and in fulfilment of this duty read, in 1886, a paper on the Treatment of Lacerations of the Cervix Uteri with histories of twenty-six original cases. This was published in the Proceedings of the society, and it, as well as the first mentioned paper, was also issued as a reprint. He also spoke at considerable length on this latter subject at the Centennial meeting in 1892, in the course of the discussion on Dr. Ingalls' paper on Trachelorraphy.

In 1886 he was elected president of the New Haven County Medical Association, and was thereby ex-officio one of the vicepresidents of the Connecticut Medical Society, but in 1890 he declined to allow his name to be presented as a candidate for the vice-presidency of the latter organization—a reliable stepping stone, as a rule, at that time, to the presidency. In 1894 he presided at the annual banquet of the society in New Haven.

He was also a member of the New York Academy of Medicine, the International Association of Gynecology and Obstetrics, and of the British Gynecological Society, of which he was elected a Fellow in 1892. To the January number of the American Journal of Obstetrics he contributed a report of the removal of a vaginal tampon encrusted with a complete shell of lime salts, twentynine years after its insertion, the patient being a single woman seventy years of age.

He was a well trained pathologist, having been a pupil of Dr. Charles Heitzman, of New York, and continued to use the microscope, and to read the latest works on pathology until his final illness.

During the early years of his residence in New Haven he spent the summer in Southampton, Long Island, where he owned an attractive house, and where he was a near neighbor of his former teacher and intimate friend, Dr. T. Gaillard Thomas. In the tenth annual report of the State Board of Health of Connecticut for 1887 he presented an elaborate statement of his critical investigation of an outbreak of Typhoid or Enteric Fever at Southampton.

Commencing in 1888 he spent each successive summer in Switzerland with the single exception of the summer of 1898, the year of the Spanish war, when he considered it his duty to remain within the boundaries of his own country. He became a most enthusiastic mountain climber and, for the second time, made the ascent of the Matterhorn during the August preceding his death.

When at home he was an indefatigable pedestrian, and for years was to be seen nearly every day on Whitney Avenue with his intimate friend Professor George P. Fisher.

He was a delightfully sociable man, and was for many years

a member of the Republican League, and later of the Quinnipiac Club.

In politics he was an enthusiastic and steadfast republican. But although interested in everything pertaining to the welfare of the city, he always refused to be a candidate for any political office, or to accept any political appointment.

He was brought up in the Congregational Church, of which his father was a deacon, and during his entire residence in New Haven was a regular attendant at Center Church, the oldest Congregational church in the city.

He was married in 1881 to Miss Rachel B. Hunter, the daughter of Reverend Henry Hunter, of New York. She had been for ten years, commencing in 1868, the assistant secretary, and later the secretary of the Nursery and Child's Hospital. She died after a long period of ill health, on August 2, 1894, at the Hotel Resig, in Pontresina, Switzerland, and was buried in the church-yard of that village.

In the latter part of December he had been for several days in attendance upon his friend and neighbor, Dr. T. H. Bishop, when on the day before Christmas he was seized with a chill accompanied by fever and a severe headache. Dr. Thomas H. Russell, who had attended him several years before, was at once called upon, and remained with him almost constantly during his entire illness, Dr. S. D. Gilbert, Dr. C. P. Lindsley and Dr. W. G. Daggett being also associated in the management of the case. But in spite of the most assiduous care their patient rapidly lapsed into unconsciousness with hemiplegia, and died at his home, from cerebral hemorrhage, at 11 o'clock Thursday morning, December 27, 1906. He was buried in the Yantic Cemetery in his native city.

He left no children, and his property was divided between his nephews and a niece, children of his sister, through whose thoughtful generosity a large part of his extensive collection of medical books came to the library of the New Haven Medical Association, to which during his life he had been a most liberal contributor.

# Edward W. McDonald, M.D., Waterbury. \*

THOMAS J. KILMARTIN, M.D., Waterbury.

On March 12, 1907, Dr. Edward W. McDonald, for thirty-five years one of the ablest and most respected physicians of Waterbury, became very ill while engaged in visiting his patients. He returned to his home, apprised his family of the seriousness of his condition, arranged his worldly and spiritual affairs, and passed away surrounded by his family, at about nine o'clock the same evening.

The news of Dr. McDonald's death was followed by a sense of personal loss to all who knew him. Expressions of regret were heard on every side, and sorrow entered the homes of the many to whom, during his lifetime, his best efforts had been cheerfully given. No man in the community was more universally known and loved, no man's departure more generally mourned.

Dr. McDonald was born in Kilfinnane, County Limerick, Ireland, on March 17, 1845, and would have been sixty-two years old had he lived five days more.

His elementary and classical education were received in his native country. In 1868 he came to America and began his medical studies in New York University, graduating with honors in 1871. After serving one year on the staff of St. Vincent's Hospital, New York, he located in Waterbury and practiced there continuously up to the time of his death. He commanded a large practice from the outset, and was regarded at one time as the busiest physician in the city. Conversant with all branches of his profession he won the distinction of being an excellent obstetrician, and in one year had attended three hundred and sixty-five child-births. He was intensely devoted to his profession, its duties and

requirements being at all times paramount in his mind to everything else. His work was consistent, self-sacrificing and tireless. His relations with members of his profession were always characterized by a wholesome respect for ethical considerations, and his dealings with patients always evinced a conscientious regard for their welfare. His judgment was considered excellent, and his honesty of purpose was never questioned.

Although distinctively a home man he was conversant with the needs and progress of his city, and during his life actively participated in its development. He was a member of the Board of Education for several years, serving part of the time as its chairman. He was a member of the Board of Health, under different administrations serving for several years as City Health Officer. He acted for years as an agent of the Bronson Library Fund. His conduct in these various public positions manifested a desire to conscientiously fulfil the duties incumbent upon him, and his actions were the result of mature study and discernment. He served as a visiting physician to the Waterbury Hospital from its opening until seven years ago, when, at his own request, he was retired from active duty and made a consultant. He was the first president of the Celtic Medical Society, and would have been obliged to occupy the position continuously, had he lived.

The memory of his life, replete with good deeds, self-sacrifice, and characterized by a scrupulous respect for his occupation, is the most lasting tribute that he could confer upon the profession he adorned. Dr. McDonald's practical and useful career stands forth for the edification and emulation of the physician who aims to secure the confidence of a community.

In 1877 he married Miss Sarah Callahan of Hartford, who with four daughters and three sons survives him. His eldest son, Arthur, is at present serving at St. Vincent's Hospital, New York.

His obsequies were attended by the physicians of the city, and an exceptionally large assemblage of friends and mourners.

### Robert Shoemaker Ives, M.D., New Haven.

Louis S. De Forest, M.D., New Haven.

Robert Shoemaker Ives, the only child of Dr. Levi Ives and Caroline Shoemaker Ives, was born in New Haven, April 27, 1842, and died at his home in that city, June 6, 1906.

Dr. Ives graduated from the academic department of Yale in 1864, from the medical in '66, and received, some years later, the degree of M.A. from his Alma Mater.

No name stands higher in the annals of medicine in New Haven for continued and brilliant service than that of Ives. Dr. Ives was the fourth in direct descent to carry on the chosen profession of his family. His great-grandfather, Dr. Levi Ives, was one of the corporators of the Connecticut Medical Society, and a regimental surgeon in the Revolutionary War; his grandfather, Dr. Eli, was distinguished in the field of general science, was one of the founders of the Yale Medical Institution, and for fifty years one of its most able professors; his father, Dr. Levi, was the most eminent general practitioner of his day in New Haven and a man respected and beloved throughout the community.

From such an ancestry Dr. Ives naturally inherited a spirit of devotion to the profession and also a more than usual fitness for its practice.

He brought to his work an enthusiasm and a persistency rarely equaled. He possessed a rare keeness of insight and a capacity for seizing upon the vital points of a case and successfully meeting their requirements. Endowed with the sunniest of dispositions, he carried with him to the bedside a hopefulness of spirit — and withal a never failing gentleness — that cheered and rallied and, by its very buoyancy, upheld the failing strength. Many there

are, who, on looking back upon some serious illness, recall not its anxiety and pain but rather those visits that brought them, on the darkest days, hope and courage, and that later brightened, with their gayety, the convalescence. For he was a born raconteur. Few men knew more or better stories, none was a better judge of their appropriateness, and many a drooping spirit gained the needed courage by such gentle help.

And yet it would have been an injustice to lose sight of his professional skill in his charming personality. For while he inspired friendship he also inspired confidence. And deservedly. He was an instance of "Suaviter in modo, fortiter in re"; under the welcome gayety and gentleness one felt the necessary strength.

He was well read in general and current mdicine and — what was more important — especially capable in the practical application of its lessons. Specialism had not then reached its present development and the physician with a large general practice was in critical cases usually his own court of appeal. That Dr.' Ives did not fail under such responsibilities, the extent and character of his practice bore eloquent witness. It has indeed been given to few men to attract in such degree alike the old and young, the rich and poor.

He had early in his career been appointed one of the attending physicians at the General Hospital, but press of work soon forced him to relinquish this for a position on the consulting staff. He was a life-long director of the hospital.

His attractive personality, his skill and success brought him an unusually large practice, one of such an extent that only the greatest professional enthusiasm and exceptional physical vitality could support its requirements. His social popularity also caused many demands to be made on his time, for the same endearing qualities which had won him the distinction of the most popular man of his college class, made him now a general favorite. For years he bore his manifold responsibilities successfully until—some five years before his death—failing health necessitated retirement.

Although loath to resign active work — he never lost his interest in medicine — leisure now brought opportunities for other and long deferred pleasures. Always a great reader of general literature, particularly interested in books of travel, he had also retained from his college days a fondness for the classics. He possessed an unusually fine library, containing many rare editions, and much of his time was now spent in their congenial companionship. He also made a number of long trips abroad, traveling extensively on the continent and to the far East.

Dr. Ives married Miss Maria Stillé, daughter of Prof. Alfred Stillé, of Philadelphia. He is survived by two children, Alfred Stillé Ives of Weimar, Germany, and Mrs. Ferrel Brinton of Philadelphia.

# Leander Page Jones, M.D., Greenwich.

Dr. Leander Page Jones, for many years a member of the State Medical Association, died while upon a visit to southern Florida with friends early in March, of this year. His death was in one sense sudden and vet not unexpected. He passed away in the manner in which he had, in speaking to his friends of the. termination of the organic disease from which he knew he suffered, expressed the hope that the end would come to him. Dr. Jones had been seriously ill a year earlier and again in the fall of last year. In the early winter, he visited with friends, Pinehurst, North Carolina, and returned from that excursion apparently somewhat improved in health. He knew that the improvement was no more than temporary, but there was nothing in his manner, no impairment of his customary cheerfulness and apparently little in his vigor, at least mental, which indicated to his friends that he knew that the organic disease from which he had suffered patiently would speedily reach the climax.

Late in the winter, Dr. Jones was persuaded by friends to visit their winter home in southern Florida and there on Sunday afternoon, March 2d, while on his way to his room for an afternoon nap, he fell, nor did any friendly assistance reach him until his heart had stopped beating. He must have passed away upon the instant.

Dr. Jones was a native of Vermont and was graduated early in the 70's at the Homeopathic Medical College of New York City. He made deliberate choice of practice in a country town, having, after some investigation that he might find a promising field, selected the town of Greenwich, Connecticut. That was then a typical Connecticut farming community. It was one of the

larger towns in superficial area in the state, containing some ten or twelve separate villages or settlements. To build up a practice in a community of that kind involved recognition of the fact that there must be many miles of riding or driving in inclement weather, often great heat and severe storms to be bravely faced, but this instead of deterring Dr. Jones served to stimulate him. In his early manhood and in fact until organic disease seized him, he was of superb physical organism, six feet in height, broad-shouldered, deep-chested and possessing very great intellectual vigor. He saw the Greenwich community pass from its quiet and serene New England country life to one of the rich and attractive suburbs of New York City. In all its growth, Dr. Jones had great part. He was a public-spirited citizen, and although devoted to his practice and obtaining the affection of all his patients and of their families, he nevertheless found time for public duties, serving the borough as warden and afterwards and until his death as health officer of the town. It was while health officer that he gave careful study of the question of community treatment of contagious diseases and of their causes. This led him to perfect a plan afterwards formulated into state law, by which the health of communities in Connecticut is protected, a plan so admirable that it has been adopted by other states. It was in great part to forward this plan that Dr. Jones accepted a nomination as State Senator and served in that capacity in the State Senate of 1894.

Afterwards, Dr. Jones planned and brought to perfection the Greenwich General Hospital with its several isolation hospitals, designed especially for the convenient study and treatment of contagious diseases. He also persuaded the community to dispose of the town farm and to bring the poor who are supported by the town into a conveniently arranged and attractive building a few rods distant from the general hospital. With this work, Dr. Jones' name will always be associated in Greenwich. He had an extensive practice, covering not only the entire township of Greenwich but frequently extending across the boundary into New York State. His public service, his career as a physician, his energy in perfecting

the health laws of the state and in building the Greenwich General Hospital were of general recognition before his death. Not until he had passed away, however, was there knowledge of his constant personal and private benefactions. The needy poor, one after another, told of that, speaking of their recollections of it often with tears of gratitude in their eyes. Dr. Jones was associated in practice for some four years with his son, Dr. Milo Jones, who was a graduate of the New Haven Medical College, and who gave promise of great success as a practitioner. His fidelity to his patients was undoubtedly the cause of the illness, which, in the summer of 1903, terminated fatally. And it was in part due to the mental suffering occasioned by the loss of his son and in part to the renewed responsibilities and severe labor that were entailed by reason of that loss that the organic trouble from which Dr. Jones suffered made rapid progress until the end came.

# John W. Johnson, M.D., Torrington.

ELIAS PRATT, M.D., Torrington.

John W. Johnson, M.D., died in Torrington, January 11, 1907, at the age of thirty-five. He was born in Pikesville, Baltimore County, Maryland. At the age of about nine years he came, with his parents, to Ansonia, Conn. He was educated in the public and private schools of that place and studied with W. H. Conklin, M.D., for four years, after which he entered the College of Physicians and Surgeons in Baltimore, where he graduated in 1892.

Immediately after graduation he began the practice of medicine at Thomaston, Conn.

On November 29th, 1894, he married Miss Jennie E. Quigley, daughter of the late Felix E. Quigley.

In July, 1895, he moved to Torrington, Conn., where he opened an office and rapidly built up a large practice. He was medical examiner for the Metropolitan Life Insurance Company and for the local lodges of the Knights of Columbus, Ancient Order of Heptasophs, Woodmen of the World, and the Independent Order of Foresters.

He was a member of the Benefit and Protective Order of Elks and of the Litchfield County and Connecticut State Medical Societies.

Doctor Johnson was a successful practitioner of medicine and he was a good business man, a combination which is not common in the medical profession.

He was a member of St. Francis (R. C.) Church, a consistent Christian gentleman. His principal thoughts and acts were ever encircled with the word "honor." His patients were fond of him and loyal to him to a marked degree.

"None knew him but to love him, None named him but to praise."

# Sylvester W. Turner, M.D., Chester.

FREDERICK S. SMITH, M.D., Chester.

Sylvester Wooster Turner, the son of Dr. Rufus Turner (who attended the first course of lectures at the Yale Medical School in 1813) and Sarah Mills (Wooster) Turner, was born in Killingworth, Conn., March 12, 1822. He prepared for college at Hill's Academy, Essex, Conn., and entered Yale, graduating in 1842.

In 1843 he studied medicine with his father in Killingworth; then he taught in a private school in Norwalk, Conn., was a private tutor in Newbern, Alabama, and for a part of one term taught the district school in Killingworth after the teacher had been driven out by the big boys.

He attended two courses of lectures in the Yale Medical School, graduating in 1846, and at once hegan to practice with his father in Killingworth.

In 1848 he located in Chester, Conn., remaining until 1858, was in Norwich, Conn., in 1859, then returned to Chester, and was in active practice until failing strength moved him to gradually relinquish his work. A fall, resulting in a permanent disability, compelled him to give up his practice entirely, and from that time he rapidly failed physically until his death in January of this year.

September 14, 1848, he married Sarah Gertrude Selden, daughter of Rev. Sylvester Selden of Hebron, Conn., seventh in descent from Rev. John Eliot, and also a descendant of Governor Griswold of Connecticut. One son, Henry S., and two daughters, Gertrude May, and Jessie Turner, survive him.

Dr. Turner was a member of the Middlesex County Medical

Society — of which he was clerk for seven years, president, and chairman of the board of censors since its organization in 1875 — of the Connecticut Medical Society, the American Medical Association, and the American Academy of Medicine.

He represented Chester in the legislature in 1875, was a member of the town board of education for twenty-nine years, president of the library association, town medical examiner, and health officer. He was a director in the Chester Savings Bank from its beginning in 1871 until his death.

Since 1849 he has been a member of the Chester Congregational Church.

As a physician Dr. Turner was quick and accurate in diagnosis, and judicious in treatment; generous to a fault in his dealings with his patients. The soul of honor in his relations with his brother practitioners, he expected like treatment from them. He hated sham and quackery in any form, and looked upon the practice of medicine as a profession which called for the best service one could give his fellow man, regardless of compensation. Devoid of any mercenary spirit, the fee was the last thing to be considered.

Few have done as much work for the pure love of humanity; and few were more sensitive to the ingratitude which too often is shown the faithful family physician.

His bright cheery manner, with his rich fund of stories, drew the patient's mind from his own ills, and brightened the path of many a one fighting the hopeless fight against the inevitable.

In town matters he was always prominent, freely giving his services in any good cause and always watchful for the best interests of the town. His sound judgment made him a valuable counsellor in matters both private and public. He was a good citizen and a loyal friend, charitable towards all, a follower of the Great Physician.

# Frederick Stanley Cowles, M.D., Essex.

FREDERICK B. BRADEEN, M.D., Essex.

On Tuesday, February 12, 1907, Frederick Stanley Cowles, M.D., finished the work that was his to do, and entered his rest, being thirty-seven years of age.

He was born in the city of Rome, N. Y., in 1870, and upon graduating from the Rome Academy entered Hobart College, remaining one year, when he entered the Medical Department of Yale University, from which he graduated in 1893.

Locating in Durham, Conn., for a time, he moved to Westbrook, Conn., and after a few years in village practice he established himself in New York City.

His health making it impossible for him to stand the strain of city practice, he returned to Rome, N. Y., and for one year practiced in that city.

Somewhat recovered in health he settled in Essex, Conn., and for nearly four years continued his practice, although never a strong man.

While in New York he had a severe attack of tonsilitis followed by rheumatism and a general infection which led to empyema and endocarditis.

Since his illness in New York he suffered from nephritis and endocarditis, which was the cause of his death.

Dr. Cowles at the time of his death was a member of the Connecticut State Medical Society, Middlesex County Medical Society, a member of the Masonic Lodge of his village, a vestryman in the Episcopal Church, a member of the Royal Arcanum, and local organizations.

He was a man of genial disposition and ability in the medical profession, and it is with regret we have to record his early decease.



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# MEMBERS OF THE SOCIETY.

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The names of those who have been Presidents are in capitals.

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Annual Meeting, First Tuesday in April. Semi-Annual Meeting, Fourth Tuesday in October.

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#### Bristol.

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Paul Plummer.
Edward A. Hotchkiss.
Ralph B. Cox.

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Thomas S. O'Connell. Walter G. Murphy.

#### Burnside:

Franklin H. Mayberry.

# East Windsor—Broad Brook: Howard O. Allen. Harold S. Backus.

Warehouse Point: Michael J. Kelly.

Enfield—Thompsonville.

Edward F. Parsons.
George T. Finch.
Henry G. Varno.
Michael J. Dowd.

Hazardville:

Simon W. Houghton.

John L. Bridge.

#### Granby.

Rollin D. Chatfield.

#### Farmington.

Charles Carrington.

<sup>\*</sup>Exempted from taxation.

#### Glastonbury.

Charles G. Rankin. William S. Kingsbury.

South Glastonbury:

Henry M. Rising. Harry B. Rising.

#### Manchester.

Francis H. Whiton. Calvin Weidner.

South Manchester:

William R. Tinker. Thomas H. Weldon. William S. Gillam. Noah A. Burr. Thomas G. Sloan.

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#### Newington.

Julius E. Griswold.

#### Plainville.

John N. Bull.

#### Rocky Hill.

Orran A. Moser.

Simsbury—Tariffville.
Charles M. Wooster.
John P. Carver.

#### Southington.

Willard G. Steadman. William R. Miller. William H. Cushing.

#### South Windsor.

Mary S. Tudor. Henry  $\Lambda$ . Deane.

#### Suffield.

Matthew T. Newton.
Philo W. Street.
William M. Stockwell.
Joseph A. Gibbs.
Suffield:

West Suffield:

William E. Caldwell.

#### West Hartford.

Charles O. Purinton.

#### Wethersfield.

Edward G. Fox. Arthur W. Howard.

#### Windsor.

Newton S. Bell. Leander Z. Skinner. Howard F. King.

#### Windsor Locks.

Joseph A. Coogan. William J. Coyle, Myron P. Robinson, Richard A. Outterson.

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#### NEW HAVEN COUNTY.

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\*William S. Barnes, M.D., New Haven, Secretary. Councilor — Charles J. Foote, M.D., New Haven.

Censors — William H. Carmalt, M.D., E. D. Hall, M.D., Carl E. Munger, M.D. Annual meeting, third Thursday in April; semi-annual, third Thursday in October.

#### New Haven.

John Nicoll, No. 70 Howe Street. FRANCIS BACON, No. 32 High Street.

A. E. Winchell, No. 60 Pearl Street. Arthur Ruickoldt, No. 71 Olive Street. Frederick Bellosa, No. 209 Orange Street. S. D. Gilbert, No. 27 Wall Street. J. P. C. Foster, No. 109 College Street. W. H. CARMALT, No. 87 Elm Street. T. H. Russell, No. 137 Elm Street. F. H. Whittemore, No. 69 Elm Street. C. P. Lindsley, No. 37 Elm Street. H. Fleischner, No. 928 Grand Avenue. M. Mailhouse, No. 45 Elm Street. M. C. O'Connor, No. 882 State Street. Charles E. Park, No. 42 Elm Street. Gustavus Eliot, No. 209 Church Street. J. E. Stetson, No. 106 High Street. J. F. Luby, No. 667 Grand Avenue. William W. Hawkes, No. 35 High Street. Frank H. Wheeler, No. 221 Crown Street. Herbert E. Smith, Medical College. F. W. Wright, No. 48 Pearl Street. Edward K. Roberts, No. 244 Grand Avenue. Oliver T. Osborne, No. 252 York Street. Lucy C. Peckham, No. 141 Green Street. William G. Daggett, No. 189 Church Street. Louis S. DeForest, No. 335 Orange Street. Henry L. Swain, No. 232 York Street. Mary B. Moody, Sherland Avenue, cor. E. Grand Avenue. G. F. Converse, No. 1 Whalley Avenue. J. H. Townsend, No. 39 College Street. T. M. Cahill, No. 40 Pearl Street. C. J. Foote, No. 26 Elm Street. S. J. Maher, No. 212 Orange Street. Jay W. Seaver, No. 25 Lynwood Street. Louis B. Bishop, No. 356 Orange Street. H. W. Ring, No. 187 Church Street. W. C. Welch, No. 44 College Street. A. O. Baribault, No. 528 Chapel Street. Rollin McNeil, No. 149 Bradley Street. Edward M. McCabe, No. 22 Elm Street. James M. Reilly, No. 337 Cedar Street. Clarence E. Skinner, No. 67 Grove Street. N. R. Hotchkiss, No. 219 York Street. Benjamin A. Cheney, No. 40 Elm Street. Charles A. Tuttle, No. 196 York Street. Harry B. Ferris, No. 118 York Street. Leonard W. Bacon, Jr., No. 294 Elm Street. Paul S. Robinson, No. 164 Grand Avenue. Arthur N. Alling, No. 199 York Street. R. A. McDonnell, No. 1142 Chapel Street. E. P. Pitman, No. 52 Sylvan Avenue. Isaac N. Porter, No. 198 Dixwell Avenue. Ernest H. Arnold, No. 46 York Square. Robert E. Peck, No. 56 Howe Street. William C. Wurtenberg, No. 28 Elm Street. Chauncey S. Lamb, No. 776 Howard Avenue. Frederick N. Sperry, No. 42 College Street.

William F. Verdi, No. 13 Elm Street. Charles J. Bartlett, Medical College. Morris D. Slattery, No. 566 Howard Avenue. Ward H. Sanford, No. 60 Edwards Street. William M. Kenna, No. 145 Olive Street. Leonard C. Sanford, No. 347 Temple Street. Willis H. Crowe, No. 106 Whalley Avenue. Charles H. Robbins, No. 326 Grand Avenue. Louis M. Gompertz, No. 1195 Chapel Street. Alfred G. Nadler, No. 377 Orange Street. William Sprenger, No. 366 George Street. Frederick C. Bishop, No. 1223 Chapel Street. James H. J. Flynn, No. 840 Howard Avenue. Frank A. Kirby, No. 235 Dixwell Avenue. William J. Sheehan, No. 619 Howard Avenue. John F. Sullivan, No. 205 Blatchley Avenue. Edward F. McIntosh, No. 192 York Street. Nicola Mariani, No. 119 Green Street. James S. Maher, No. 215 Orange Street. Percy D. Littlejohn, No. 193 York Street. A. W. Marsh, No. 1012 Whalley Avenue. William N. Winne, No. 58 Harrison Street. \*William S. Barnes, No. 526 Howard Avenue. Clarence L. Kilbourn, No. 202 Blatchley Avenue. Gilbert T. McMaster, No. 42 Trumbull Street. Henry H. Smith, No. 43 Elm Street. Julia E. Teele, No. 207 Hamilton Street. Harry L. Welch, No. 44 College Street. Otto G. Ramsay, No. 251 Church Street. Francis P. Heery, No. 153 Olive Street. Thomas V. Hynes, No. 27 College Street. Harry M. Steele, No. 226 Church Street. Willis E. Hartshorn, No. 1138 Chapel Street. Richard F. Rand, No. 246 Church Street. Edward S. Moulton, No. 38 Elm Street. Timothy Francis Cohane, No. 600 Howard Avenue. William James Butler, No. 712 Howard Avenue. David Bercinsky, No. 360 George Street. Louis A. Notkins, 700 Howard Avenue. Terrence S. McDermott, No. 225 Columbus Avenue. David L. Rundlett, 1543 Chapel Street. Francis H. Reilly, No. 312 Columbus Avenue. Nelson A. Ludington, No. 96 Park Street. Dwight M. Lewis, No. 193 York Street. Seymour L. Spier, No. 348 Crown Street. William H. Bean, 252 York Street. John G. Hugo, 1245 State Street. E. Reed Whittemore, 69 Elm Street. John F. Lane, No. 203 York Street. Alice P. Ford, No. 1187 Chapel Street.

#### .Ansonia.

Louis E. Cooper. Louis H. Wilmot. Edward K. Parmelee.

#### Branford.

C. W. Gaylord. A. J. Tenny.

<sup>\*</sup>Exempted from taxation.

#### Cheshire.

Edward W. Karrman.

#### Derby.

F. N. Loomis. Royal W. Pinney. Edward O'R. Maguire.

#### East Haven.

Charles W. Holbrook.

#### Guilford.

George H. Beebe. Redfield B. West.

#### Hamden.

Walter S. Lay.

#### Mt. Carmel:

George H. Joslin.

#### Madison.

John M. Shepard.

#### Meriden.

\*N. Nickerson. A. W. Tracey. E. T. Bradstreet. J. D. Eggleston. Edward W. Smith. Ava H. Fenn. E. W. Pierce. S. D. Otis. F. P. Griswold. E. D. Hall. H. W. Delesdernier. H. A. Meeks. William Galvin. J. W. H. La Pointe. Joseph A. Cooke. Albert E. Von Tobel. Louis F. Wheatley. Michael J. Sullivan.

#### Milford.

E. B. Heady. E. C. Beach.

#### Naugatuck.

Thomas M. Bull. James W. Robbins. William J. Delaney. Edwin H. Johnson. Frank J. Tuttle. John J. Carroll.

#### North Haven.

R. B. Goodyear. Edwin H. Bidwell. Gould S. Higgins.

#### Orange-West Haven:

J. F. Barnett.
Durell Shepard.
Charles D. Phelps.
Victor A. Kowalewski.
Charles A. Bevan.

#### Oxford.

\*Lewis Barnes.

#### Seymour.

Frank A. Benedict. Elias W. Davis.

#### Wallingford.

J. D. McGaughey: William S. Russell. William P. Wilson. Caroline North, David R. Lyman. Irving E. Brainard.

#### Waterbury.

F. E. Castle. Walter L. Barber. CHARLES S. RODMAN. I. M. Benedict. Carl E. Munger. Bernard A. O'Hara. John F. Hayes. Augustin A. Crane. Patrick T. O'Connor. John D. Freney. Charles A. Hamilton. George O. Robbins. Charles H. Brown. Edward W. Goodenough. Myron L. Cooley. Frederick G. Graves. John R. Poore. James L. Moriarty. George W. Russell. Daniel L. Maloney. Thomas J. Kilmartin. Charles A. Monagan. Henry G. Anderson. Henry E. Hungerford. Nelson A. Pomerov. Patrick J. Dwyer.

<sup>\*</sup>Exempted from taxation.

Louis J. Thibault.
William A. Goodrich.
Adelard D. David.
John E. Farrell.
Charles Engelke.
Willard F. Allen.

Thomas J. McLarney. Edward F. Ashley. Dudley B. Deming. Andrew C. Swenson. James J. McLinden.

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#### NEW LONDON COUNTY.

Charles E. Brayton, M.D., Stonington, President.

Harry M. Lee, M.D., New London, Vice-President.

\*Edwin C. Chipman, M.D., New London, Secretary.

Councilor — Edward P. Brewer, M.D., Norwich.

Censors — L. S. Paddock, M.D., William Witter, M.D., C. E. Brayton, M.D. Annual Meeting, first Thursday in April; semi-annual, first Thursday in October.

#### Colchester.

Raymond R. Gandy.

East Lyme — Niantic: Frederick H. Dart. Edwin Atkinson.

Griswold--Jewett City: George H. Jennings.

#### Groton.

Edmund P. Douglass, Frank W. Hewes.

Noank:

William M. Hill.

Montville — Uncasville: Morton E. Fox.

#### New London.

Abiel W. Nelson.
FRANCIS N. BRAMAN.
John G. Stanton.
Charles B. Graves.
Harold H. Heyer.
Carlisle F. Ferrin.
Thomas W. Rogers.
J. Clifton Taylor.
Harry M. Lee.
Emanuel A. Henkle.
\*Edward C. Chipman.
Gurdon S. Allyn.
Daniel Sullivan.
Joseph M. Ganey.

#### Norwich.

Lewis S. Paddock, William Witter. William S. C. Perkins. Patrick Cassidy, LEONARD B. ALMY. Anthony Peck. Julian LaPierre. Edward P. Brewer. Newton P. Smith. Witter K. Tingley. William T. Browne. George R. Harris. Rush W. Kimball, James J. Donahue. Harry E. Higgins. Charles H. Perkins. Patrick H. Harriman. Dennis J. Shahan. John H. Evans. Patrick J. Cassidy.

#### Taftville:

George Thompson.
Alphonse Fontaine.

Yantic:

Herbert H. Howe.

James L. Harrington. William J. O'Neil. William D. Cronin.

<sup>\*</sup>Exempted from taxation.

#### Stonington.

Charles E. Brayton. Norman L. Drake. George D. Stanton.

#### Mystic:

Frank A. Coates. Louis M. Allyn.

#### Old Mystic:

\*Albert T. Chapman. William H. Gray.

#### Voluntown.

Warren R. Davis.

#### Waterford.

George M. Minor.

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#### FAIRFIELD COUNTY.

Edwards M. Smith, M.D., Bridgeport, President. D. Chester Brown, M.D., Danbury, Vice-President. \*Frank W. Stevens, M.D., Bridgeport, Secretary. James D. Gold, M.D., Bridgeport, Treasurer.

Councilor -- Gould A. Shelton, M.D., Shelton.

Censors - Frederick Schavoir, M.D.,

William J. Tracey, M.D.,

William S. Randall, M.D.

Annual Meeting, second Tuesday in April, at Bridgeport; semi-annual, second. Tuesday in October.

#### Bridgeport.

Andrew J. Smith, No. 191 Barnum Avenue. GEORGE L. PORTER, No. 372 State Street. Robert Lauder, No. 310 Fairfield Avenue. \*N. E. WORDIN, No. 274 Fairfield Avenue. F. M. Wilson, Nos. 834-836 Myrtle Avenue. F. B. Downs, No. 906 Lafayette Street.

J. W. Wright, Nos. 808-810-812 Myrtle Avenue. A. A. Holmes, No. 991 Broad Street.

Charles C. Godfrey, No. 340 State Street.

S. M. Garlick, No. 474 State Street.

Henry Blodget, No. 477 State Street.

J. C. Lynch, No. 826 Myrtle Avenue.

C. C. Hoyt, No. 1289 State Street.

G. W. Osborn, No. 888 Broad Street.

J. R. Topping, No. 349 Noble Avenue. B. W. White, No. 390 State Street.

Jacob May, No. 816 North Avenue.

F. C. Graves, No. 561 State Street.

G. B. Cowell, No. 502 East Washington Avenue

George E. Ober, No. 391 Main Street.

D. C. DeWolfe, No. 516 Fairfield Avenue.

Henry S. Miles, No. 417 State Street.

Charles L. Banks, No. 306 West Avenue.

Fessenden L. Day, No. 477 State Street.

Edward Fitzgerald, No. 52f East Washington Avenue.

George S. Ford, No. 527 State Street.

Frank M. Tukey, No. 429 State Street.

<sup>\*</sup>Exempted from taxation.

William W. Gray, No. 346 West Avenue. James D. Gold, No. 839 Myrtle Avenue. Reuben A. Lockhart, No. 760 Washington Avenue. Harriet A. Thompson, No. 695 Warren Street. Frederick J. Adams, No. 327 Fairfield Avenue. W. J. A. O'Hara, No. 361 Barnum Avenue. David M. Trecartin, No. 860 Park Avenue. Harry W. Fleck, No. 421 State Street. Thomas L. Ellis, No. 332 West Avenue. Charles R. Townsend, No. 346 State Street. Herbert E. Smyth, No.º 376 John Street. J. Murray Johnson, No. 385 State Street. Elmer F. Blank, No. 387 Noble Avenue. Irving L. Nettleton, No. 385 Noble Avenue. Edwards M. Smith, 340 State Street. Frank L. Smith, No. 2178 Main Street. David B. Wason, No. 311 State Street. Thomas F. Stanton, No. 374 State Street. Edward Dorland Smith, No. 834 Myrtle Avenue. \*Frank W. Stevens, No. 829 Myrtle Avenue. George Howell Warner, No. 429 State Street. Daniel Michael Driscoll, No. 467 State Street. Chester E. Blackman, No. 1119 Stratford Avenue. David H. Monahan, No. 525 State Street. George F. Sheedy, No. 2059 Main Street. Henry E. Waterhouse, No. 430 State Street. Robert J. Lynch, No. 231 Fairfield Avenue. Charles J. Leverty, No. 469 State Street. Philip W. Bill, No. 534 Fairfield Avenue. Louis Smirnow, No. 323 State Street. Albert J. Roberts, No. 346 State Steet. F. Winthrop Pyle, No. 808 Myrtle Avenue. Eli B. Ives, No. 469 State Street. Frank H. Coops, 411 State Street. William C. Watson, No. 446 Stratford Avenue. Jacob W. Gerber, No. 662 East Main Street. Herman E. Schultz, No. 475 State Street. Nathan T. Pratt, No. 1221 Stratford Avenue. Charles N. Haskell, No. 467 State Street.

#### Bethel.

A. E. Barber. George DeWitt Wight. Homer F. Moore. Charles R. Hart.

#### Danbury.

F. P. Clark. E. A. Stratton. W. S. Watson.

D. Chester Brown.H. F. Brownlee.

Nathaniel Selleck.

\*Exempted from taxation.

George E. Lemmer.

\*Charles F. Craig, U. S. A.
John A. Wade.
William F. Gordon.
William T. Bronson.
Richard M. English.

#### Darien.

George II. Noxon.

Paul U. Sunderland.

Noroton:

M. W. Robinson.

#### Fairfield.

W. H. Donaldson.

Greenfield Hill:

M. V. B. Dunbam,

Greens Farms:

David W. McFarland.

Southport:

Joseph L. Hetzel.

Robert E. Perdue.

#### Greenwich.

Frank Terry Brooks. Fritz C. Hyde.

William L. Griswold.

Alvin W. Klein.

Lloyd O. Thompson. John A. Clarke.

William Burke.

Harriet Baker Hyde.

Dimenides

Riverside:

Charles Smith.

# Huntington -Shelton:

GOULD A. SHELTON. William S. Randall.

Francis I. Nettleton. Joseph G. Mahoney.

Monroe -Stepney:

SETH HILL.

#### New Canaan.

Clarence H. Scoville, Myre J. Brooks.

#### Norwalk.

James G. Gregory.
R. L. Higgins.
S. H. Huntington.
William J. Tracey.
Arthur R. Turner.
Jesse M. Coburn.
Walter Hitchcock.

#### South Norwalk:

C. G. Bohannan. Lauren M. Allen. Henry C. Sbercr. Jean Dumortier. Wright B. Bean. Francis J. Burnell.

East Norwalk:

Frederick B. Baker,

#### Redding.

Ernest H. Smith.

#### Ridgefield.

Russell W. Lowe. Howard P. Mansfield.

#### Stamford.

A. M. Hurlbut. Samuel Pierson. A. N. Phillips. P. P. Van Vleet. F. Schavoir. William B. Treadway. Rosavelle G. Philip. George Sherrill. Watson E. Rice. Frank M. Tiffany. George R. Hertzberg. John J. Cloonan. Dean Foster. John B. Griggs. Donald R. MacLean. Frank H. Barnes.

#### Stratford.

W. B. Cogswell. G. F. Lewis.

John H. Staub.

## Weston-Lyons Plains:

F. Gorham.

#### Westport.

F. Powers.

F. D. Ruland.

\*L. H. Wheeler, U. S. A. Stuart W. Sherwood.

#### Wilton.

A. B. Gorham.

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#### WINDHAM COUNTY.

C. J. LeClair, M.D., Danielson, President, R. C. Paine, M.D., Thompson, Vice-President. \*James L. Gardner, M.D., Central Village, Secretary. Councilor — Frank E. Guild, M.D., Windham.

Censors — J. B. Kent, M.D., James L. Gardner, M.D., George W. May, M.D. Annual Meeting, third Tbursday in April.

Brooklyn-Wauregan:
\*A. H. Tanner.

#### Danielson.

RIENZI ROBINSON. W. H. Judson. C. J. LeClair. James R. Shannon. George M. Burroughs.

#### Killingly.

Ashael E. Darling. Henry L. Hammond.

East Killingly: Charles E. Hill.

#### Moosup.

Charles N. Allen, W. W. Adams.

Central Village: \*James L. Gardner.

#### Plainfield.

Arthur A. Chase.

#### Pomfret.

S. B. Overlock.

#### Putnam.

John B. Kent.

F. A. Morrell.
Omar LaRue.
Warren W. Foster.
Henry R. Lowe.
Marguerite J. Bullard.
Edward F. Perry.

Clarence E. Simmons.

#### Thompson.

Robert C. Paine. North Grosvenor Dale: Emilien Rock

#### Windham.

F. E. Guild.

#### Willimantic.

Frederick Rogers,
T. MORTON HILLS.
T. R. Parker.
John Weldon.
R. C. Wbite.
George W. May.
Laura H. Hills.
Joseph A. Girouard.
Clarence E. Simonds.
Owen O'Neil.

#### Woodstock—East Woodstock: Charles C. Gildersleeve.

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#### LITCHFIELD COUNTY.

George D. Ferguson, M.D., Thomaston, President.
Irving L. Hamant, M.D., Norfolk, Vice-President.
Salmon G. Howd, M.D., Winsted, Secretary.
Councilor — Edward H. Welch, M.D., West Winsted.

Censors — N. S. Wadhams, M.D., W. S. Hulbert, M.D., H. D. Moore, M.D. Annual Meeting, fourth Tuesday in April; semi-annual, second Tuesday in October.

#### Bethlehem.

Etta May Hadley-Judd.

Canaan —Falls Village: Albert E. Cobb. Francis S. Skiff.

Cornwall—West Cornwall:
Joseph Robinson.

Howard G. Stevens.

#### Goshen.

J. H. North. Noah S. Wadhams.

#### Litchfield.

J. T. Sedgwick.
John L. Buel.
Charles N. Warner.
Charles I. Page.
Walter L. Rathbun.

#### New Hartford.

Josiah Swett.

#### New Milford.

George E. Staub. George H. Wright.

<sup>\*</sup>Exempted from taxation.

#### Norfolk.

John C. Kendall.
I. L. Hamant.
Lucius D. Bulkley.
Frederick S. Dennis.

#### North Canaan — Canaan: Charles W. Camp.

Frank H. Lee.
John G. Adam.

#### Plymouth—Terryville:

W. W. Wellington. A. V. Stougbton.

#### Salisbury.

Philip H. Sellew.

#### Lakeville:

William Bissell. George H. Knight. William B. Bissell. Ernest R. Pike.

#### Sharon.

Clarence W. Bassett. Jerome S. Chaffee.

#### Thomaston.

George D. Ferguson. Robert Hazen. Ralph S. Goodwin.

#### Torrington.

William L. Platt. Thatcher S. Hanchett. Elias Pratt.
Jerome S, Bissell.
James D. Hayes.
Abram J. Barker.
Cbarles H. Carlin.
\*Sanford H. Wadhams,

H. D. Moore. William J. Hogan. Timothy M. Ryan.

#### Washington.

William J. Ford.

#### Watertown.

Ernest K. Loveland.

#### Winchester.

Winsted:

Edward L. Pratt.
William S. Hulbert.
\*Salmon G. Howd.
David D. Reidy.
Ernest R. Kelsey.
Norman B. Saunders.

#### West Winsted:

Edward H. Welch. William S. Richards.

#### Woodbury -Hotchkissville:

Egbert L. Smith. William G. Reynolds.

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#### MIDDLESEX COUNTY.

Charles B. Young, M.D., Middletown, President. James Murphy, M.D., Middletown, Vice-President. \*John E. Loveland, M.D., Middletown, Secretary. Councilor — Frank K. Hallock, M.D., Cromwell.

Censors — C. H. Hubbard, M.D., J. E. Bailey, M.D., M. C. Hazen, M.D. Annual Meeting, second Thursday in April; semi-annual, second Thursday in October.

### Chatham-Middle Haddam:

George N. Lawson.

#### East Hampton:

Albert Field. Arthur H. Myers.

#### Chester.

Fred Sumner Smith.

#### Clinton.

David Austin Fox.

#### Cromwell.

Frank K. Hallock. Charles E. Bush.

#### East Haddam.

M. W. Plumstead.

<sup>\*</sup>Exempted from taxation.

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#### Essex.

Charles H. Hubbard. Frederick Barton Bradeen.

#### Haddam.

Miner C. Hazen.

#### Killingworth.

Edward P. Nichols.

#### Middletown.

William E. Fisher. Charles E. Stanley. Henry S. Noble. Michael D. Murpby. John E. Bailey. Arthur J. Campbell. Arthur B. Coleburn. I. Francis Calef. \*John E. Loveland. Kate C. Mead. Daniel A. Nolan. Allen Ross Diefendorf.

John H. Mountain. Charles B. Young. Jessie W. Fisber. James T. Mitchell. James Henry Kingman. Thomas Patrick Walsh. James Murphy. James M. Kenniston. Lewis Maitland.

#### Old Saybrook.

Calista V. Luther. Irwin Granniss. Edward Gould Rowland.

#### Portland.

Cushman A. Sears, Frank E. Potter. Dennis L. Glynn.

Saybrook-Deep River. \*Edwin Bidwell. Howard T. French. Arthur Pratt.

#### TOLLAND COUNTY.

T. F. Rockwell, M.D., Rockville, President. James Stretch, M.D., Stafford, Vice-President. \*Eli P. Flint, M.D., Rockville, Secretary. Councilor - C. B. Newton, M.D., Stafford Springs.

Censors - I. P. Fiske, M.D., A. L. Hurd, M.D., E. T. Davis, M.D. Annual Meeting, third Tuesday in April; semi-annual, third Tuesday in October.

#### Coventry.

Isaac P. Fiske.

South Coventry:

W. L. HIGGINS.

Louis I. Mason.

#### Ellington.

E. T. Davis.

#### Hebron.

Cyrus H. Pendleton. Cyrus E. Pendleton.

Mansfield -Mansfield Depot:

F. E. Johnson. W. E. Cramm.

#### Rockville.

Frederick Gilnack. T. F. Rockwell.

E. P. Flint. T. F. O'Laughlin. Ernest O. Winship. Dean C. Bangs. Frederick W. Walsh.

#### Somers.

Alonzo L. Hurd.

Stafford-Stafford Springs:

C. B. NEWTON.

F. L. Smitb.

James Stretch.

#### Tolland.

William N. Simmonds.

#### Vernon.

\*A. R. GOODRICH.

\*Exempted from taxation.

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# OFFICERS OF THE CONNECTICUT STATE MEDICAL SOCIETY FROM ITS ORGANIZATION IN 1792 TO

#### THE PRESENT TIME.\*

#### PRESIDENTS.

1792	Leverett Hubbard.	1875	Pliny A. Jewett.
1794	Eneas Munson.	1876	Ashbel W. Barrows.
1801	James Potter.	1877	Robert Hubbard.
1803	Thomas Mosley.	1878	Charles M. Carleton.
1804	Jeremiah West.	1879	Alfred R. Goodrich.
1807	John R. Watrous.	1880	Gideon L. Platt.
1812	Mason F. Cogswell.	1881	William Deming.
1822	Thomas Hubbard.	1882	William G. Brownson.
1827	Eli Todd.	1883	Elisha B. Nye.
1829	John S. Peters.	1884	Benjamin N. Comings.
1832	William Buel.	1885	Elijah C. Kinney.
1834	Thomas Miner.	1886	Thomas M. Hills.
1837	Silas Fuller.	1887	Francis Bacon.
1841	Elijah Middlebrook.	1888	George L. Porter.
1843	Luther Ticknor.	1889	Orlando Brown.
1846	Archibald Welch.	1890	Melancthon Storrs.
1849	George Sumner.	1891	Charles A. Lindsley.
1851	Rufus Blakeman.	1892	Cyrus B. Newton.
1853	Richard Warner.	1893	Francis D. Edgerton.
1854	William H. Cogswell.	1894	Francis N. Braman.
1856	Benjamin H. Catlin.	1895	Seth Hill.
1858	Ashbel Woodward.	1896	Rienzi Robinson.
1861	Josiah G. Beckwith.	1897	Ralph S. Goodwin.
1863	Ebenezer K. Hunt.	1898	Henry P. Stearns.
1865	Nathan B. Ives.	1899	Charles S. Rodman.
1866	Isaac G. Porter.	1900	Leonard B. Almy.
1867	Charles Woodward.	1901	John H. Grannis.
1868	Samuel B. Beresford.	1902	Gould A. Shelton,
1869	Henry Bronson.	1903	Samuel B. St. John.
1870	Charles F. Sumner.	1904	William H. Carmalt.
1871	Gurdon W. Russell.		†Edward H. Welch.
1872	Henry W. Buel.	1905	†Edward H. Welch. Nathaniel E. Wordin.
1873	Ira Hutchinson.	1906	William L. Higgins.
1874	Lowell Holbrook.	1907	Everett J. McKnight.

#### VICE-PRESIDENTS.

1792	Eneas Munson.	1814	Thomas Hubbard.
1794	Elihu Tudor.	1822	Eli Todd.
1796	James Potter.	1824	Eli Ives.
1801	Thomas Mosley.	1827	John S. Peters.
1803	Jeremiah West.	1829	William Buel.
1804	Jared Potter.	1832	Thomas Miner.
1806	John R. Watrous.	1834	Silas Fuller.
1807	Mason F. Cogswell.	1837	Elijah Middlebrook.
1812	John Barker.	1841	Luther Ticknor.
1813	Timothy Hall.	1843	Archibald Welch.

<sup>\*</sup>Prepared for the Secretary hy Dr. J. B. Lewis, Hartford. †Resigned.

1846	Dyer T. Brainard.	1883	Benjamin N. Comings.
1847	George Sumner.	1884	Elijah C. Kinney.
1849	Rufus Blakeman.	1885	Samuel Hutchins.
1851	Richard Warner.	1886	Francis Bacon.
1853	William H. Cogswell.	1887	George L. Porter.
1854	Benjamin H. Catlin.	1888	Orlando Brown.
1856	Ashbel Woodward.	1889	Charles J. Fox.
1858	Josiah G. Beckwith.	1889	Charles A. Lindsley.
1861	Ebenezer K. Hunt.	1891	Cyrus B. Newton.
1863	Nathan B. Ives.	1892	Francis D. Edgerton.
1865	Isaac G. Porter.	1893	Francis N. Braman.
1866	Charles Woodward.	1894	Seth Hill.
1867	Samuel B. Beresford.	1895	Rienzi Robinson.
1868	Henry Bronson.	1896	Ralph S. Goodwin.
1869	Charles F. Sumner,	1897	Henry P. Stearns.
1870	Gurdon W. Russell.	1898	Charles S. Rodman.
1871	Henry W. Buel.	1899	Leonard B. Almy.
1872	Ira Hutchinson	1000	John H. Grannis

 1872
 Ira Hutchinson.
 1900
 John H. Grannis.

 1873
 Lowell Holbrook.
 1901
 Gould A. Shelton.

 1874
 Pliny A. Jewett.
 1902
 Samuel B. St. John.

 1875
 Ashbel W. Barrows.
 1903
 William H. Carmalt.

 1876
 Robert Hubbard.
 1904
 Edward H. Welch.

 1878
 Alfred R. Goodrich.
 1905
 Eli P. Flint.

 1879
 Gideon L. Platt.
 J Samuel D. Gilbert.

 1880
 William Deming.
 (Charles E. Brayton.

1880 William Deming.
1881 William G. Brownson.
1882 Elisha B. Nye.

1900 Charles E. Brayton
1907 Franklin P. Clark.
1907 Miner C. Hazen.

#### SECRETARIES.

1792 Jared Potter. 1838 Archibald Welch. 1794 James Clark. 1843 Ralph Farnsworth. 1796 Daniel Sheldon. 1798 Nathaniel Perry. 1844 Worthington Hooker. 1846 Gurdon W. Russell. 1849 Josiah G. Beckwith. 1858 Panet M. Hastings. 1800 Samuel Woodward. 1801 William Shelton. 1805 John Barker. 1862 Leonard J. Sanford. 1810 Eli Ives. 1864 Moses C. White. 1813 Joseph Foot. 1817 Jonathan Knight. 1827 Samuel B. Woodward. 1876 Charles W. Chamberlain. 1883 Samuel B. St. John. 1889 Nathaniel E. Wordin. 1905 Walter R. Steiner. 1830 George Sumner. 1832 Charles Hooker.

#### TREASURERS.

 1792
 John Osborn.
 1829
 Joseph Palmer.

 1793
 Jeremiah West.
 1834
 Elijah Middlebrook.

 1794
 John Osborn.
 1837
 Luther Tichnor.

 1796
 Mason F. Cogswell.
 1841
 Virgil Maro Dow.

 1800
 William B. Hall.
 1851
 George O. Sumner.

 1808
 Timothy Hall.
 1863
 James C. Jackson.

 1813
 Richard Ely.
 1876
 Francis D. Edgerton.

 1816
 Thomas Miner.
 1883
 Erastus P. Swasey.

 1817
 John S. Peters.
 1889
 William W. Knight.

1817 John S. Peters. 1809 William W. Kinght. 1827 William Buel. 1905 Joseph H. Townsend.

## ALPHABETICAL LIST

OF THE

#### CONNECTICUT STATE MEDICAL MEMBERS OF THE SOCIETY.

With Date and Place of Graduation, and Post-Office Address.

In preparing this list the Secretary has followed the list in the proceedings of 1892, made with great care and labor by Dr. J. B. Lewis for the Centennial year. It may be relied upon as being correct.

Adam, John Geikie, Adams, Frederick Joseph, Adams, Henry Ely, Adams, William Waldo, Allen, Charles Noah, Allen, Howard Oliver, Allen, Lauren Melville, Allen, Millard Filmore, Alling, Arthur Nathaniel, B.A., Yale, '86, Allyn, Gurdon Spicer, Allyn, Lewis Maxson, Almy, Leonard Ballou, B.A., Yale, '73, Alton, Charles De Lancey, Anderson, Arvid, Anderson, Henry Gray, Arnold, Ernest Hermann, Ashley, Edwin Fiske, Ph. B.,

Abrams, Alva Elnathan,

Backus, Harold Simeon, Bacon, Francis, Bacon, Leonard Woolsey, Jr., B. A., Yale, '88, Bailey, George Cornelius, Bailey, John Elmore, Bailey, Michael Angelo, Ballard, Harry Emory, Baker, Frederick Birdseye, Bangs, Dean Cleveland. Banks, Charles Lincoln, Barber, Alvin Elizur, Barber, Walter Lewis, Barker, Abram James, Baribault, Arthur Octave, Barnes, Frank Hazelhurst,

Atwater, Caleb Huntington,

Axtelle, John Franklin,

Yale, '97, Atkinson, Edwin,

Albany, '81, Trinity, Tor., '00, Univ. N.Y., '95, Yale, '02, Bellevue, '91, Univ. Vt., '81, Univ. N.Y., '79, P. & S., N.Y., '80, Med. Chi., Phila., '95,

P. & S., N.Y., '9t, Univ. Pa., '03, Univ. Pa., '93,

Bellevue, '76, Bellevue, '75, Univ. Mich., '93, P. & S., N.Y., '89, Yale, '94,

Yalc, 'oo, Univ. Vt., '93, P. & S., N.Y., '71, L. I. Hosp. Coll., '71,

L. I. Hosp. Coll., '03, Yale, '53,

Yale, '92, Univ. N.Y., '86, P. & S., N.Y., '85, P. & S., Balt., '93, Univ. Vt., '93, Univ. Md., '88, Balt. Med. Col., '02, P. & S., N.Y., '91, Berkshire, '54, Bellevue, '73, Bellevue, '97, Vict. Med. Col., '89, N. Y. Hom. Med., '96, Stamford,

Hartford. North Canaan. Bridgeport. Hartford. Moosup. Moosup. Broad Brook. South Norwalk. New Haven.

New Haven. New London. Mystic.

Norwich. Hartford. New Britain. Waterbury. New Haven.

Waterbury. Niantic. Wallingford. Hartford.

Broad Brook. New Haven.

New Haven. Hartford. Middletown. Hartford. Waterbury. East Norwalk. Rockville. Bridgeport. Bethel. Waterbury. Torrington. New Haven.

Yale, '93,

Dartmouth, '79,

Barnes, Lewis, B.A., M.A., Yale, '47, Barnes, Wm. Samuel, Ph.B., Yale, '95, Barnett, John Frederick, Barrows, Benj. Safford, Ph.B., Yale, '83, Bartlett, Charles Joseph, B.A., Yale, '92; M.A., Yale, '94, Bassett, Clarence Wheeler, Beach, Charles Coffing, Ph.B., Yale, '77, Beach, Charles Edward, Bean, William Hill, Ph.B., Yale, '82, Bean, Wright Butler, Beebe, George Hoxie, Bell, George Newton, Bell, Newton Stephen, Bellosa, Frederick, Benedict, Frank Allen, Benedict, John Mitchell, Bercinsky, David, Bevan, Charles Ambrose, Bidwell, Edwin, Bidwell, Edwin Hamilton, Bill, Philip Worcester, Ph.B., Yale, '97, Bishop, Frederick Courtney, B.A., Yale, '92, Bishop, Louis Bennett, B.A., Yale, '86, Bissell, Jerome Samuel, Bissell, William, B.A., Yale, 53, Bissell, William Bascom, A.B., Yale, '88, Blackman, Chester Eugene, Blanchard, Irving DeLoss, Blank, Elmer Francis, Blodget, Henry, A.B., Yale, '75, Bohannan, Charles Gordon, Botsford, Charles Porter, Boucher, James Joseph, Boucher, John Bernard, Brackett, Arthur Stone, Brackett, William Walker, -Bradeen, Frederick Barton, Bradley, Mark Spalding, Bradstreet, Edward Thomas, B.A., Yale, '74, Brainard, Clifford Brewster, Ph.B., Yale, '94, Brainard, Irving Edwin, Braman, Francis Nelson, Brayton, Charles Erskine, Brennan, Ambrose Kirk, Brewer, Edward Pliny, Ph.D.,

Buffalo, Univ., '50, Oxford. New Haven. Yale, '97, Yale, '69, West Haven. Univ. N.Y., '87, Hartford. Yale, '95, New Haven. Univ. N.Y., '82, Sharon. P. & S., N.Y., '82, Hartford. Yale, '88, Milford. Yale, '03, New Haven. P. & S., N. Y., '95, South Norwalk. Univ. N.Y., '78, Guilford. Yale, '92, Hartford. Univ. Vt., '64, Yale, '72, Windsor. New Haven. P. & S., N.Y., '87, Seymour. Univ. N.Y., '82, Waterbury. Yale, '02, New Haven. Med. Chi., Chicago, '87, West Haven. 1 Yale, '47, Deep River. Dartmouth, '94, North Haven. P. & S., N.Y., '01, Bridgeport. Yale, '95, New Haven. Yale, '88, Yale, '94, Yale, '56, New Haven. Torrington. Lakeville. P. & S., N.Y., '92, Lakeville. L. I. Hosp. Coll., '97, Bridgeport. Yale, '97, Hartford. Starling, '97, Bellevue, '81, Bridgeport. Bridgeport. Univ. N.Y., '78, Yale, '94, South Norwalk. Hartford. P. & S., Balt., '04, Hartford. P. & S., Balt., '94, Hartford. Jefferson, '95, Bristol. Jefferson, '96, New Britain. Univ. Pa., '99, Essex. P. & S., N.Y., '92, Hartford. P. & S., N.Y., '77, Meriden. Yale, '98, Hartford. Yale, '02, Wallingford. Bellevue, '66, New London. P. & S., N.Y., '73, Stonington.

New Haven.

Norwich.

Bridge, John Law, B.S., Wesleyan, '88; Ph.D., Clark, '94, Bromley, Daniel Tyler, Bronson, William Thaddeus, Brooks, Frank Terry, B.A., Yale, '90, Brooks, Myre Joel, Brown, Charles Henry, Brown, David Chester, Browne, William Tyler, Ph.B., Yale, '78, Brownlee, Harris Fenton, Buel, John Laidlaw, Bulkley, Lucius Duncan, A.B., Yale, '66; M.A., Bull, John Norris, Bull, Thomas Marcus, Bullard, Marguerite Jane, A.B., Cornell, '02, Bunce, Philip Dibble, A.B., Yale, '88, Burke, William, Burnell, Francis Edwin, Burr, Noah Arthur, Burroughs, George McClellan, Bush, Charles Ellsworth,

Butler, William James, Cahill, Joseph Henry, Cahill, Thomas Matthew, Caldwell, William Elry, Calef, Jeremiah Francis, B.A., Wesleyan, '77, Camp, Charles Welford, Campbell, Arthur Joseph, Carlin, Charles Henry, Carmalt, William Henry, M.A., Yale, '81, Carrington, Charles, Carroll, John James, Carver, John Preston, Cassidy, Patrick, Cassidy, Patrick John, B.A., Yale, '94, Castle, Frank Edwin, Chaffee, Jerome Stuart, Ph.B., Yale, '94, Chapman, Albert Taylor, Chase, Arthur Alverdo, Chatfield, Rollin Blackman, Cheney, Benjamin Austin, B.A., Yale, '88 Chester, Thomas Weston, B.A., Rutgers, '92, M.A., '95, Chipman, Edward Clifford, Clark, Franklin Pierce,

Clark, Robert Moses,

Harvard, '03, Yale, '67, Univ. N.Y., '98,

L. I. Hosp. Coll., '93, Yale, '67, Univ. N.Y., '93, Yale, '84,

Harvard. '82, P. & S., N.Y., '88, P. & S., N.Y., '88,

P. & S., N.Y., '69, P. & S., N.Y., '78, P. & S., N.Y., '87,

Cornell Univ., '04,

P. & S., N.Y., '91, L. I. Hosp. Coll., '96, L. I. Hosp. Coll., '94, Yale, '01, Balt. Med. Coll., '00, Yale, '94, L. I. Hosp. Coll., '95,

Balt. Univ., '92, Yale, '88, Balt. Med. Coll., '95,

Yale, '80, Univ. N.Y., '74, P. & S., Balt., '85, Univ. Mich., '96,

P. & S., N.Y., '61, P. & S., N.Y., '60, Dartmouth, '97, Albany, '96, Univ. Vt., '65,

Johns Hopkins, '98, Yale, '70,

Univ. Pa., '97, P. & S., N.Y., '64, Harvard, '01, Yale, '93,

Yale, '90,

P. & S., N.Y., '95, P. & S., N. Y., '91, P. & S., N.Y., '76, Univ. Pa., '91, Thompsonville. Hartford. Danbury.

Greenwich. New Canaan. Waterbury. Danbury.

Norwich. Danbury. Litchfield.

Norfolk. Plainville. Naugatuck.

Putnam.

Hartford. Greenwich. South Norwalk. Manchester. Danielson. Cromwell. New Haven.

Hartford. New Haven. West Suffield.

Middletown. Canaan. Middletown. Torrington.

New Haven. Farmington. Naugatuck. Simsbury. Norwich.

Norwich. Waterbury.

Sharon. Old Mystic. Plainfield. Granby.

New Haven.

Hartford. New London. Danbury. New Britain. Clarke, John Alexander, Clary, George, A.B., Dartmouth, '52, Clifton, Harry Colman, Cloonan, John Joseph, Coates, Franklin Avery, A.B., Brown, '72; A.M., '75, Cobb, Alfred Edward, Coburn, Jessie Milton, Cochran, Levi Bennett, Cogswell, William Badger, Cohane, Timothy Francis, Coholan, Michael James, Coleburn, Arthur Burr, Conklin, James Henry, Converse, George Frederick, Coogan, Joseph Albert, Cook, Ansel Granville, Cooke, Joseph Anthony, Cooley, Myron Lynus,

Yale, '84,
Coops, Frank Harvey, B.A.,
Dalhousie, '88,
Cowell, George B.,
Cox, Ralph Benjamin,
Coyle, William Joseph,
Craig, Charles Franklin,
Cramm, William Edward,
Crane, Augustin Averill, B.A.,
Yale, '85,

Cooper, Louis Edward, Ph.B.,

Yale, '85, Crary, David, Cronin, William Daniel, Crossfield, Frederick Solon, Crothers, Thomas Davison, Crowe, Willis Hanford, Curtiss, William Martin Stanley, Cushing, William Henry,

Daggett, William Gibbons, B.A., Yale, '80, Darling, Ashael Ebenezer, Dart, Frederick Howard, Davenport, Annabella Keith, David, Adelard David, Davis, Edwin Taylor, Davis, Elias Wyman, B.A., Yale, '80, Davis, Gustav Pierpont, B.A., Yale, '66, Davis, Warren Russell, Davison, Luther Augustus, Day, Fessenden Lorenzo, B.A., Bates, '90, Deane, Henry Augustus, DeForest, Louis Shepard, B.A., Yale, '79; M.A. Yale, '91,

Bellevue, '97,

Yale, '57, Univ. Pa., '01, P. & S., Balt., '97,

P. & S., N.Y., '75, Yale, '98, Boston Univ., '74, Univ. Pa., '93, Bellevue, '81, Yale, '97, Univ. N.Y., '65, P. & S., N.Y., '90, Univ. Vt., '99, Yale, '87, Bellevue, '76, P. & S., N.Y., '87, Yale, '97, Buffalo Univ., '86,

Yale, '86,

P. & S., Balt., '96, P. & S., N.Y., '88, McGill, '02, Buffalo Univ., '85, Yale, '94, Univ. Vt., '95,

Yale, '87, Yale, '69, P. & S., N. Y., '00, Bellevue, '78, Albany, '65, P. & S., N.Y., '95, Univ. Balt., '93, Bellevue, '92,

Univ. Pa., '84, Harvard, '72, P. & S., N.Y., '84, S. C. Med. Coll., '03 Dartmouth, '89, Univ. Vt., '88,

Yale, '92,

P. & S., N.Y., '69, Univ. Vt., '82, Univ. N.Y., '82,

Bellevue, '93, Dartmouth, '68,

Univ. Jena, '85,

Greenwich.

New Britain. Hartford. Stamford.

Mystic.
Falls Village.
Norwalk.
Hartford.
Stratford.
New Haven.
New Britain.
Middletown.
Hartford.
New Haven.
Windsor Locks.
Hartford.
Meriden.
Waterbury.

Ansonia.

Bridgeport.
Bridgeport.
Collinsville.
Windsor Locks.
Danbury.
Mansfield Center.

Waterbury. Hartford. New London. Hartford. Hartford. New Haven. Bristol. Southington.

New Haven.
Killingly.
Niantic.
'03, Hartford.
Waterbury.
Ellington.

Seymour.

Hartford. Voluntown. Hartford.

Bridgeport. South Windsor.

New Haven.

Delaney, William Joseph, Delesdernier, Horace William, Deming, Dudley Brainard, Ph.B., Yale, '97, Dennis, Frederic Shepard, B.A., Yale, '72; M.R.C.S., DeWolfe, Daniel Charles, Dickerman, Wilton Elias, B.A., Amherst, '90, Diefendorf, Allen Ross, B.A., Yale, '94, Donahue, James Joseph, Donaldson, William Henry, Douglass, Edmund Peaslee, Dowd, Michael Joseph, Dowling, John Francis, Down, Edwin Augustus, Downey, Roger Charles, Downs, Frederick Bradley, Drake, Norman Lucie, Driscoll, Daniel Michael, Dumortier, Jean, Dunham, Martin Van Buren, Dwyer, Patrick James, A.B., Fordham, '94,

Eggleston, Jeremiah Dewey, Eliot, Gustavus, B.A., Yale, '77; A.M., Yale, '82, Ellis, Thomas Long, B.A., Yale, '94, Elmer, Oliver Edward,

Emmet, Francis Arthur, Enders, Thomas Burnham, Engelke, Charles, English, Richard Matthew, Ensign, Robert Eleazer, Evans, John Henry,

Farrell, John Edward, Felty, John Wellington, A.M., Emporia, Kan., '97, Fenn, Ava Hamlin, Ferguson, George Dean, Ferrin, Carlisle Franklin, B.A., Univ. Vt., '91, Ferris, Harry Burr, B.A., Yale, '87, Field, Albert, Finch, George Terwilliger, B.A., Hobart, '75; M.A., Hobart, '78, Fisher, Jessie Weston,

Fisher, William Edwin, Fiske, Isaac Parsons, Fitzgerald, Charles, Fitzgerald, Edward, Fitzgerald, William,

McGill Univ., '87, Univ. Vt., '85,

P. & S., N. Y., 'or.

Bellevue, '74, Univ. Vt., '86,

Yale, '93.

Yale, '96, P. & S., Balt., '96, Univ. N.Y., '81, Univ. N.Y., '89, Balt. Med. Coll., '01, L. I. Hosp. Coll., '90, P. & S., N.Y., '87, Univ. Vt., '92, Univ. N.Y., '78, Univ. N.Y., '91, P. & S., N.Y., '00, Univ. Ghent, Belg., '89, South Norwalk. Harvard, '67,

Univ. N.Y., '97, P. & S., N.Y., '79,

P. & S., N.Y., '80,

Yale, '96, P. & S., Balt., '94, Yale, '02, P. & S., N.Y., '91, P. & S., N.Y., '02, √Yale, '98, Albany, '57, P. & S., N.Y., '02,

Univ. N.Y., '03,

Jefferson, '84, P. & S., Balt., '86, Univ. N.Y., '79,

P. & S., N.Y., '95,

Yale, 'oo. L. I. Hosp. Coll., '67,

Bellevue, '77, Women's Med Coll., Pa., '93,

Univ. Pa., '76, Univ. N.Y., '75, Univ. Vt., '98, P. & S., Balt., '84, Univ. Vt., '95,

Naugatuck. Meriden.

Waterbury.

Norfolk. Bridgeport.

Hartford.

Middletown. Norwich. Fairfield. Groton. Thompsonville. Hartford. Hartford. Middletown. Bridgeport. Stonington. Bridgeport. Greenfield Hill.

Waterbury.

Meriden. New Haven.

Bridgeport. Hartford. Hartford. Hartford. Waterbury. Danbury. Berlin. Norwich.

Waterbury.

Hartford. Meriden. Thomaston.

New London.

New Haven. East Hampton.

Thompsonville.

Middletown. Middletown. Coventry. Hartford. Bridgeport. Hartford.

Fleck, Harry Willard,
Fleischner, Henry,
Flint, Eli Percival,
Flynn, James Henry Joseph,
Fontaine, Alphonse,
Foote, Charles Jenkins, B.A.,
Yale, '83,
Ford, Alice Porter,

Ford, George Skiff, Ford, William J., Foster, Dean, M.A., Univ. Kan., Foster, John Pierpont Codrington, B.A., Yale, '69, Foster, Warren Woodend, Fox, Charles James, Fox, David Austin, Fox, Edward Gager, Fox, Morton Earl, French, Howard Truman, Freney, John Daniel, Froelich, Charles Edward, M.A., Copenhagen, '64, Fromen, Ernst Theodore, Fuller, Horace Smith, B.A., Amherst, '58; A.M., '61,

Galvin, William, Gandy, Raymond Reeves, Ganey, Joseph Matthew, Gardner, James Lester, Garlick, Samuel Middleton, B.A., Dart., '74, Gaylord, Charles Woodward, B.A., Yale, '70, Gerber, Jacob Wolf, Gibbs, Joseph Addison, Gilbert, Samuel Dutton, B.A., Yale, '69, Gildersleeve, Charles Childs, Gilliam, William S., Gill, Michael Henry, Gillin, Charles Adelbert, Gilnack, Frederick, Girouard, Joseph Arthur, Gladwin, Ellen Hammond,

Glynn, Dennis Lawrence,
Godfrey, Charles Cartlidge,
Gold, James Douglass, Ph.B.,
Yale, '88,
Gompertz, Louis Michael,
Goodenough, Edward Winchester,
B.A., Yale, '87,
Goodrich, Alfred Russell,
'Goodrich, Charles Augustus, B.S.,
Mass. Ag. Coll., '93,

Jefferson, '96, Yale, '78, Yale, '79, Yale, '95, Laval Univ., '92,

Harvard, '87, Woman's Med. Coll., Pa., '04, Bellevue, '93, Univ. N.Y., '84, Yale, '99,

Yale, '75, Harvard, '82, Univ. N. Y., '76, Univ. & Belle., '02, Univ. N.Y., '83, L. I. Hosp. Coll., '03, P. & S., N.Y., '91, L. I. Hosp. Coll., '93,

Copenhagen, '70, Hartford. Milwaukee Med. Col., '97, New Britain.

P. & S., N.Y., '65, Univ. Vt., '92,

Univ. Pa., '99, P. & S., Balt., '04, Univ. Vt., '81,

Harvard, '77,

Yale, '72, Univ. Md., '04, P. & S., Chicago, '02,

Yale, '71,
Yale, '96,
Univ. Pa., '88,
Yale, '96,
Univ. N.Y., '83,
P. & S., N.Y., '67,
Balt. Med. Coll., '99,
Women's Med. Coll.,
N. Y., '72,
Balt. Med. Coll., '02,
Dartmouth, '83,

P. & S., '91, Yal**e, '**96,

Yale, '93, Berkshire, '46,

P. & S., N.Y., '96,

Bridgeport. New Haven. Rockville. New Haven. Norwich.

New Haven.

New Haven. Bridgeport. Washington. Stamford.

New Haven.
Washington, D. C.
Hartford.
Clinton.
Wethersfield.
Uncasville.
Deep River.
Waterbury.

Hartford.

Meriden. Colchester. New London. Central Village.

Bridgeport.

Branford. Bridgeport. Suffield.

New Haven.
East Woodstock.
South Manchester.
Hartford.
Berlin.
Rockville.
Willimantic.

Hartford. Middletown. Bridgeport.

Bridgeport. New Haven.

Waterbury. Vernon.

Hartford.

Goodrich, William Albert, Med. Chi. Phila., '02, Goodwin, Ralph Schuyler, Ph.B., Yale, '90, P. & S., N.Y., '93, Goodyear, Robert Beardsley, Yale, '68, L. I. Hosp. Coll., '96, Gordon, William Francis, Gorham, Andrew Bennett, Yale, '79, Yale, '76, Gorham, Frank, Yale, '96, Granniss, Irwin, Graves, Charles Burr, B.A., Harvard, '86, Yale, '82, Univ. N.Y., '88, Graves, Frederick Chauncey, Graves, Frederick George, Yale, '92, P. & S., N.Y., '89, Gray, William Henry, Gray, William Wetmore, B.S., Dickinson, '85, Bellevue, '90, Gregory, James Glynn, B.A., Yale, '65, P. & S., N.Y., '68, Griggs, John Bagg, Yale, '97, P. & S., N.Y., '76, Griswold, Frederick Pratt, Griswold, Julius Egbert, Univ. N.Y., '79, Griswold, William Loomis, Ph.B., Yale, '81, P. & S., N.Y., '85, Guild, Frank Eugene, L. I. Hosp. Coll., '85, Hadley-Judd, Etta May, Women's Med. Coll., Phila., '95, Harvard, '73, Hall, Edward Dormenio, Yale, '92, Hall, Joseph Barnard, Hallock, Frank Kirkwood, A.B., P. & S., N.Y., '85, Wesleyan, '82; A.M., '85, Hamant, Irving Louis, L. I. Hosp. Coll., '90, Hamilton, Charles Allen, Univ. Vt., '86, Hammond, Henry Louis, Ph.B., Brown, '65, Hanchett, Thatcher Swift, Harvard, '66, Bellevue, '64, Univ. N.Y., '84, Harriman, Patrick Henry, Harrington, James Leon, Jefferson, '03, Harris, George Robert, P. & S., N.Y., '85, Hart, Charles Remington, Hartshorn, Willis Ellis, Ph.B., '95, Colo. Coll., Haskell, Charles Nahum,

P. & S., N.Y., '59, Univ. Minn., '98, Univ. Vt., '90, Hawkes, William Whitney, B.A., Yale, '79, Yale, '81, Hayes, Arthur Douglass, Dartmouth, '96, Hayes, James Dermot, B.S., Manhattan Coll., N. Y., Univ. N.Y., '94, Univ. N.Y., '79, Univ. Mich. '55, Hayes, John Frances, Hazen, Miner Comstock, Hazen, Robert, A.B., Univ. Vt., '96, Univ. Vt., '98, Heady, Elias Buel, Yale, '72, Heery, Francis Patrick, Yale, '98, Henkle, Emanuel Alexander, Cornell, '99, Hertzberg, George Robert, Dartmouth, '99, Hetzel, Joseph Linn, Bellevue, '91, Heublein, Arthur Carl, P. & S., N.Y., '02, Thomaston. North Haven. Danbury. Wilton. Lyon's Plain. Saybrook.

Waterbury.

New London. Bridgeport. Waterbury. Old Mystic.

Bridgeport.

Norwalk. Stamford. Meriden. Newington.

Greenwich. Windham.

Bethlehem. Meriden. Hartford.

Cromwell. Norfolk. Waterbury.

Killingly. Torrington. Norwich. New London. Norwich. Bethel.

New Haven. Bridgeport.

New Haven. Hartford.

Torrington. Waterbury. Haddam.

Thomaston. Milford. New Haven. New London. Stamford. Southport. Hartford.

Hewes, Frank William. Heyer, Harold Hankinson, Higgins, Gould Shelton, Higgins, Harry Eugene. Higgins, Royal Lacey, Higgins, William Lincoln, Hill, Charles Edwin, B.A., Yale, '76, Hill, Seth, Hill, William Martin, Hills, Laura Heath, Hills, Thomas Morton. Hitchcock, Walter, Ph.B., Yale, '80, Hogan, William John, Holbrook, Charles Werden,

M.A., Amherst, '93, Holmes, Arthur Almond. Holmes, George James, Holroyd, Joseph Scripture, Horton, William Wickham, Hotchkiss, Edward Alfred, Hotchkiss, Norton Royce, Houghton, Simon Willard, Howard, Arthur Wayland, Howard; John, Howd, Salmon Jennings, Howe, Harmon George,

Howe, Herbert H., Hoyt, Curtis Clark, Hubbard, Charles Henry, Hugo, John George, Hulbert, William Sharon, Hungerford, Henry Edward, Huntington, Samuel Henry, Hurd, Alonzo L., B.S., Me., '82, Hurlbutt, Augustin Moen, B.A., Yale, '76, Hyde, Fritz Carleton, Hyde, Harriet Baker, Hynes, Thomas Vincent,

Ingalls, Phineas Henry, A.B., Bowdoin, '77; A.M., Bowdoin, '85, Irving, Samuel Wellington, Isham, Oliver Kingsley, Ives, Eli Butler, Jennings, George Herman, Johnson, Edwin Hines, Johnson, Frederick Eugene, Johnson, John Murray, Johnson, Marcus Morton, Ph.B., Brown, '70, Jones, Daniel Albion, B.A., Yale,

'84; D.M.D., Harvard, '89,

Univ. Vt., '94, Univ. N.Y., '87, Yale, 'or, Univ. N.Y., '96, Bellevue, '67, Univ. N.Y., '90,

Harvard, '79, Yale, '66, Univ. Va., '97, Women's Med. Coll., Pa., Willimantic. Yale, '63,

P. & S., N. Y., '83, Yale, '98,

Yale, '96, Harvard, '65, Albany, '82, P. & S., N.Y., '95, Univ. N.Y., '79, McGill, '04, Univ. Md., '91, Bellevue, '79, Univ. N. Y., '90, Dartmouth, '81, Jefferson, '83, Univ. Vt., 73, P. & S., N.Y., '75, Univ. Vt., '80, P. & S., N.Y., '87, Yale, '60, P. & S., Balt., '03,. Univ. N.Y., '80, Yale, '98, Yale, 76, Univ. Vt., '91,

P. & S., N.Y., '79, Univ. Mich., '60, Univ., Mich., '00, Yale, 'oo,

P. & S., N.Y., '80, Yale, '91, Univ. N.Y., '88, Yale, 'o3, L. I. Hosp. Coll., '75, Univ. Vt., '88, Univ. N. Y., '79, L. 1. Hosp. Coll., '95,

Univ. N.Y., '77,

Yale, '92,

Groton. New London. North Haven. Norwich. Norwalk. South Coventry.

East Killingly. Stepney. Noank. Willimantic.

Norwalk. Torrington.

East Haven. Bridgeport. New Britain. Waterville. Bristol. Collinsville. New Haven. Hazardville. Wethersfield. Hartford. Winsted.

Hartford. Yantic. Bridgeport. Essex. New Haven. Winsted. Waterbury. Norwalk. Somers.

Stamford. Greenwich. Greenwich. New Haven.

Hartford. New Britain. Hartford. Bridgeport. Jewett City. Naugatuck. Mansfield. Bridgeport.

Hartford.

New Haven.

Joslin, George Harvey, Judson, William Henry,

Kane, Thomas Francis,
Karrman, Edward William,
Kellogg, Kenneth Evernghim,
Kelly, Michael J.,
Kelsey, Ernest Russell,
Kendall, John Calvin, B.A.,
Yale, '70,
Keniston, James Mortimer,
Kenna, William Matthew, Ph.B.,

Yale, '90,
Kennedy, Paul Bernard,
Kent, John Bryden,
Kilbourn, Clarence Leishman,
Kilbourn, Joseph Austin,
Kimball, Rush Wilmot, A.B.,
Williams, '87,

King, Howard Frost, Kingman, James Henry, A.B., Yale, '82, Kingsbury, Isaac William, A.B., Harvard, '96,

A.B., Harvard, '96, Kingsbury, William Sanford, Kirby, Frank Alonzo,

Klein, Alvin Walter,

Knight, George Henry, A.M., Yale, '98.
Knight, William Ward,
Kowalewski, Victor Alexander, B.A., Yale, '99,

Laden, Michael Richard, Lally, Thomas John, Lamb, Chauncey Stafford, Lampson, Edward Rutledge, A.B., Trintty, '91, Lane, John Francis,

B.A., Yale, '94; M.A., '97, LaPierre, Julian, LaPierre, Leone Franklin, LaPoint, John William Henry,

LaRue, Omer,
Lauder, Robert, M.A., Wesleyan,
'89,
Law, Homer Lycurgus,
Lawson, George Newton, B.A.,
Yale, '90,
Lawton, Franklin Lyman, Ph.B.,
Yale, '90,
Lay, Walter Sidders,
LeClair, Charles Joseph,
Lee, Frank Herbert,

Univ. Vt., '87, Jefferson, '78,

Bellevue. '87, N. Y. Univ., '84, P. & S., N.Y., '98, Balt. Med. Coll., '97, Univ. Md., '01,

P. & S., N.Y., '75, Harvard, '71,

Yale, '92, Bellevue, '96, Harvard, '60, Yale, '97, P. & S., Balt., '97,

L. I. Hosp. Coll., '90, Albany, '99,

P. & S., N.Y., '85,

P. & S., N. Y., '03, Yale, '96, Columbian Univ., Wash., D. C., '95, Cincin. Coll. Med. & Surg., '89,

P. & S., N.Y., '86, Univ. N.Y., '76,

Yale, '02.

Univ. N.Y., '98, Albany, '99, Buffalo Univ., '93,

P. & S., N.Y., '96,

Yale, '03,
Bellevue, '71,
Yale, '01,
Laval Univ., Montreal,
'92,
Vict., Montreal, '71,

Yale, '71, Jefferson, '69,

Yale, '92,

Yale, '93, Yale, 'or, Victoria, '87, Albany, '88, Mt. Carmel. Danielson.

Hartford. Cheshire. New Britain. Warehouse Point-Winsted.

Norfolk. Middletown.

New Haven. West Haven. Putnam. New Haven. Hartford.

Norwich, Windsor.

Middletown.

Hartford. Glastonbury.

New Haven..

Greenwich.

Lakeville. Hartford.

West Haven.

Hartford. Waterbury. New Haven.

Hartford.

New Haven. Norwich. Norwich.

Meriden. Putnam.

Bridgeport. Hartford.

Middle Haddam.

Hartford. Hamden. Danielson. Canaan. Lee, Harry Moore, Lemmer, George Edward, Leverty, Charles Joseph, Lewis, Dwight Milton, B.A., Yale, '97, Lewis, George Francis, B.A., '64, Lewis, George Frederick, B.A., Trinity, '77, Lewis, John Benjamin, Lindsley, Charles Purdy, Ph.B., Yale, '75, Littlejohn, Percy Duncan, Lockhart, Reuben Arthur, Loew, Harry Kalman, Loomis, Francis Newton, B.A., Yale, '81, Loveland, Ernest Kilburn,

Loveland, John Elijah, A.B.,
Wesleyan, '89,
Lowe, Henry Russell,
Lowe, Russell Walter,
Luby, John Francis, Ph.B.,
Yale, '76,
Ludington, Nelson Amos,
Luther, Calista Vinton,

Lyman, David Russell, Lynch, John Charles, Lynch, Robert Joseph, Lyon, Edwin Bradbury,

MacLean, Donald Robert, Maguire, Edward O'Reilly, Maher, James Stephen, Ph.B., Yale, '92, Maher, Stephen John, Mahoney, Joseph George, Mailhouse, Max, Ph.B., Yale, '76, Maitland, Lewis, Maloney, Daniel Joseph, Mansfield, Howard Parker, Mariani, Nicola, Marsh, Arthur Washburn, Mason, Louis Irving, Mathewson, Earl, May, George William, May, Jacob Rush, Mayberry, Franklin Hayden, Mayer, Nathan, McCabe, Edward Michael, B.A., Manhattan, '83, McCook, John Butler, McDermott, Terence Stevens, McDonnell, Ralph Augustine, B.A., Yale, '90, McFarland, David Walter,

McGaughey, James David,

Columbia, '98, New London.
Bellevue, '85, Danbury.
N.Y. Univ. & Belle., 'or, Bridgeport.

Johns Hopkins, '01, Yale, '65,

Yale, '84, Univ. N.Y., '53,

Yale, '78, Yale, '97, Yale, '91, P. & S., N.Y., '02,

Yale, '83, Yale, '97,

Harvard, '92, Dartmouth, '82, Univ. N.Y., '89,

P. & S., N.Y., '78, Yale, '01, Women's Med. Coll., Pa., '85, Univ. Va., '99, Univ. N.Y., '86, Bellevue, '97, Berkshire, '62,

Balt. Med. Coll., 'or, P. & S., N.Y., '98,

Yale, '96,
Yale, '87,
Yale, '03,
Yale, '78,
Univ. Pa., '95,
Univ. N.Y., '96,
L. I. Hosp. Coll., '93,
Univ. Naples, '93,
Univ. Vt., '82,
P. & S., N.Y., '91,
P. & S., N.Y., '79,
Milwaukee, '95,
Chicago, '76,
Univ. Vt., '85,
Cincinnati, '57,

Yale, '87, P. & S., N.Y., '94, Yale, '98,

Yale, '92, Univ. N.Y., '85, Jefferson, '70, New Haven. Collinsville.

Stratford. Hartford.

New Haven. New Haven. Bridgeport. Hartford.

Derby. Watertown.

Middletown. Woodstock Valley. Ridgefield.

New Haven. New Haven.

Saybrook. Wallingford. Bridgeport. Bridgeport. New Britain.

Stamford. Derby.

New Haven.
New Haven.
Shelton.
New Haven.
Middletown.
Waterbury.
Ridgefield.
New Haven.
New Haven.
South Coventry.
Durham.
Willimantic.
Bridgeport.
Burnside.
Hartford.

New Haven. Hartford. New Haven.

New Haven. Greens Farms. Wallingford.

McIntosh, Edward Francis, McIntosh, James Fabien, McKee, Frederick Lyman, McKnight, Everett James, B.A., Yale, '76, McLarney, Thomas Joseph, McLinden, James John, McMaster, Gilbert Totten, McNeil, Rollin, McPartland, Patrick Farrel, Meade, Kate Campbell, Meeks, Harold Albert, Meyers, Arthur Henry, Miles, Henry Shillingford, Ph.G., N. Y., '88, Miller, George Root, Miller, William Radley, Minor, George Maynard, Mitchell, James Thomas, Monagan, Charles Andrew, B.S., Trinity, '93, Monahan, David Henry, M.A., Manhattan, '83, Moody, Mary Blair, Moore, Homer Franklin,

Moore, Howard Doolittle, Morasse, Lewis Ovid, Morgan, William Dennison, A.B., Trinity, '02, Moriarty, James Ligouri, Morrell, Frederick Augustus, Moser, Oran Alexander, Moulton, Edward Seymour, B.A., Oberlin, '91,

Mountain, John Henry, Munger, Carl Eugene, Ph.B., Yale, '80, Murphy, James, Murphy, Michael Daniel,

Murphy, Walter Graham, Nadler, Alfred Goldstein, B.A., Yale, '93, Naylor, James Henry,

Nelson, Abiel Ward, Nettleton, Francis Irving, Ph.B., Yale, '94, Nettleton, Irving LaField,

Newton, Cyrus Brownlie, Newton, Matthew Turner, Nicholas, Edward Payson, A.B., Col. N. J., (Princeton), '48, A.M., '51,

Nickerson, Nehemiah, Nicoll, John,

Noble, Henry Smith, A.B., Tufts, '69, LL.D., Tufts, '05,

Yale, '97, Victoria, '87, P. & S., N.Y., '99,

P. & S., N.Y., '79, P. & S., Balt., '97, Univ. Pa., '98, Jefferson, '98, Yale, '62, Balt. Med. Coll., '05, Women's Med. Coll., Phila., '88, Bellevue, '90, Med. Chi., Phila., '02,

P. & S., N.Y., '91, P. & S., Balt., '86, Albany, '98, L. I. Hosp. Coll., '85, Univ. N.Y., '91,

Univ. Pa., '98,

Dartmouth, '00, Buffalo, '76, Wash. Univ. Mo., Bellevue, '97, Univ. Vict., '84,

P. & S., N.Y., '76, Harvard, '96, L. I. Hosp. Coll., '85, Yale, '02,

Yale, '94, Jefferson, '96,

P. & S., N.Y., '83, Univ. Pa., '95, Bellevue, '84, Albany Med. Coll., '90, East Hartford.

Yale, '96, Univ. Vt., '95, Harvard, '61,

Yale, '97, L. I. Hosp. Coll., '98, Yale, '56, Yale, '51,

P. & S., N.Y., '52, N. Y. Med. Coll., '57, Yale, '54,

P. & S., N.Y., '71,

New Haven. North Grosvenordale. Hartford.

Hartford. Waterbury. Waterbury. New Haven. New Haven. Hartford.

Middletown. Meriden. East Hampton.

Bridgeport. Hartford. Southington. \Vaterford. Middletown.

Waterbury.

Bridgeport. New Haven. Bethel. Torrington. Putnam.

Hartford. Waterbury. Putnam. Rocky Hill.

New Haven. Middletown.

Waterbury. Portland. Middletown.

New Haven. Hartford. New London.

Shelton. Bridgeport. Stafford Springs. Suffield.

Killingworth Meriden. New Haven.

Middletown.

Nolan, Daniel Andrew, Ph.G., Phil., '93, North, Caroline, North, Joseph Howard, Notkins, Louis Adolph, Noxon, George Henry,

Ober, George Eugene,
O'Connell, Thomas Smith,
O'Connor, Matthew Charles, A.B.,
St. Francis X., N. Y., '69,
O'Connor, Patrick Thomas,
O'Flaherty, Ellen Pembroke,
O'Hara, Bernard Augustine,
O'Hara, William James Aloysius,
O'Laughlin, Thomas Francis,
O'Neil, Owen,
O'Neil, William Joseph,
Osborn, George Wakeman, B.A.,
Yale, '84,
Osborne, Oliver Thomas,
Otis, Samuel Dickinson,

Outterson, Richard Ambrose,

Overlock, Seldom Burden, B.A., Colby, '86.

Owens, William Thomas,

Paddock, Lewis Sloat, M.A.,
Page, Charles Ithamar,
Paine, Robert Child,
Park, Charles Edwin,
Parker, Theodore Raymond,
Parmelee, Edward K.,
Parmele, George Luther, D.M.D.,
Harvard, '70,
Parsons, Edward Field, A.B.,
Williams, '48,
Peck, Anthony, B.A., Hamilton,
'72,
Peck, Robert Ellsworth, Ph.B.,
Yale, '90,
Peckham, Lucy Creemer,

Phillips, Alfred Noroton, Pierce, Elbridge Worthington, Med. Chir., Phila., Tufts, '98, L. I. Hosp. Coll., '73, Yale, '03, Balt. Med. Coll., '93,

Univ. Vt., '90, P. & S., Balt., '92,

P. & S., N.Y., '73, Bellevue, '92, Cornell, '01, Bellevue, '82, P. & S., Balt., '93, Univ. N.Y., '96, Jefferson, '04, L. I. Coll. Hosp., '93,

P. & S., N.Y., '87, Yale, '84, Univ. N.Y., '77, Jefferson, '02,

Bellevue, '89, Univ. Vt., '99,

N. Y. Med. Coll., '54, P. & S., N.Y., '90, Dartmouth, '00, Yale, '81, Univ. N.Y., '80, L. I. Coll. Hosp., '89,

L. I. Hosp. Coll., '69,

P. & S., N.Y., '58,

Univ. N.Y., '75,

Yale, '93, Women's Med. Coll., Pa., '85, Western Reserve, '60, Yale, '03, Starling, '92, P. & S., N.Y., '91, P. & S., N.Y., '60,

L. I. Hosp. Coll., '97,

P. & S., N.Y., '95,
Women's Med. Coll.,
N. Y. Inf., '75,
P. & S., N.Y., '83,
Univ. N.Y., '85,

Middletown. Wallingford. Goshen. New Haven. Darien.

Bridgeport. East Hartford.

New Haven. Waterbury. Hartford. Waterbury. Bridgeport. Rockville. Willimantic. New London.

Bridgeport. New Haven. Meriden. Windsor Locks.

Pomfret. Hartford.

Norwich. Litchfield. Thompson. New Haven. Willimantic. Ansonia.

Hartford.

Thompsonville.

Norwich.

New Haven.

New Haven. Hebron. Southport. Norwich. Norwich. Putnam.

West Haven.

Stamford. Stamford. Meriden. Pierson, John Corbin, Tufts, '03, Hartford. Pierson, Samuel, P. & S., N.Y., '81, Stamford. Pike, Ernest Reginald, Univ. Mich., '98, Lakeville. P. & S., N.Y., '88, Pinney, Royal Watson, Derby. Pitman, Edwin Parker, B.A., Dartmouth, '91, New Haven. Dartmouth, '86, P. & S., N.Y., '81, Torrington. Platt, William Logan, Univ. Vt., '94, Plummer, Paul, Collinsville. Plumstead, Matthew Woodbury, Jefferson, '87, East Haddam. Pomeroy, Nelson Asa, P. & S., N.Y., '96, Waterbury. Harvard, '94, Waterbury. Poore, John Robinson, Porter, George Loring, B.A., Bridgeport. Jefferson, '62, Brown, '59, Porter, Isaac Napoleon, B.A., Lincoln Univ., '90, Yale, '93, New Haven.. Chicago Med. Coll., '81, Hartford. Porter, William, Jr., Potter, Frank Edward, P. & S., N.Y., '89, Portland. P. & S., N.Y., '70, · Westport. Powers, Frederick, Bellevue, '92, Univ. N.Y., '84, Pratt, Arthur Milon, Deep River. Pratt, Edward Loomis, Winsted. P. & S., N.Y., '87, Torrington. Pratt, Elias, Pratt, Nathan Tolles, A.B., Trinity, '94; M.A., '97, Yale, '04, Bridgeport. Purinton, Charles Oscar, Ph.B., Yale, '97, Yale, 'oo, West Hartford. Pyle, Francis Winthrop, A.B., Yale, '97, P. & S., N.Y., '02, Bridgeport. Ramsay, - Otto Gustaf, M.A., Yale, 'or, Hon., Univ. Va., '90, New Haven. Rand, Richard Foster, Ph.B., Yale, '95, Johns Hopkins, 'co, New Haven. Randall, William Sherman, Ph.B., Yale, '83, P. & S., N.Y., '86, Shelton. Rankin, Charles Goodrich, A.B., Williams, '84, A.M., '87, Chicago Med. Coll., '86, Glastonbury. Rathbun, Walter Latham, Yale, '03, Litchfield. Ray, Wyeth Elliott, Yale, '98, Hartford. Reeks, Thomas Eben, Univ. Md., 'or, New Britain. Reidy, David Dillon, Med. Chi., Phila., '99, Winsted. Reilly, Francis Henry, Yale, '97, New Haven. Yale, '78, Balt. Med. Coll., '95, Reilly, James Michael, New Haven. Reinert, Emil Gustav, Hartford. Reynolds, William George, Yale, '97, Woodbury. Rice, Watson Emmons, Univ. Mich., '72, Stamford. Richards, William Spencer, West Winsted. Univ. N.Y., '89, Ring, Henry Wilson, A.B., Bowdoin, '79; M.A., Bowdoin, '82, Me. Med. Coll., '81, New Haven. Rising, Harry Breed, Yale, '95, South Glastonbury. Yale, '68, Rising, Henry Martin, South Glastonbury. Robbins, Charles Henry, Balt. Med. Coll., '95, New Haven. Robbins, George Orrin, Yale, '79, Waterbury. Bellevue, '80, Robbins, James Watson, Naugatuck. Roberts, Albert Joseph, Harvard, '02, Bridgeport. Roberts, Edward Kilbourne, Ph.B., Yale, '78, Robinson, Joseph, Yale, '80, New Haven.

P. & S., N.Y., '98,

West Cornwall.

Robinson, Myron Potter, Robinson, Myron Winslow, Robinson, Paul Skiff, Ph.B., Yale, '89, Robinson, Rienzi, Rock, Emilien, Rockwell, Thomas Francis, Rodman, Charles Shepard, Rogers, Frederick, Rogers, Thomas Weaver, Root, Edward King, Root, Joseph Edward, B.S., Boston Univ., '76, Rose, John Henry, Rowland, Edward Gould, B.A., Oberlin, '99, Rowley, Alfred Merriman, Rowley, Robert Lee, Ruickoldt, Arthur, Rundlett, David Livingstone, Russell, George Washington, Russell, Gurdon Wadsworth, Trinity, B.A., '34; M.A., '37, Russell, Thomas Hubbard, Ph.B., Yale, '72, Russell, William Spencer, Ryan, Patrick Joseph, Ryan, Timothy Mayher, A.B.,

Loyola Coll., Sanford, Leonard Luther, B.A., Yale, '90, Sanford, Ward Harding, Saunders, Norman Brown, Schavoir, Frederick, Schulz, Herman Samuel, Scoville, Clarence Henry, Sears, Cushman Allen, Seaver, Jay Webber, B.A., Yale, '80, M.A., '93, Sedgwick, James Theodore, Segur, Gideon Cross, Selleck, Nathaniel, Sellew, Philip Hamilton, Shanan, Denis Joseph, Shannon, James Bernard, Sheedy, George Francis, Ph.B., Yale, '99, Sheehan, William Joseph, B.S., Manhattan Coll., '92, Shelton, Gould Abijah, M.A., Yale, 'gr, Shepard, Durell, Shepard, John McIntosh, Shepherd, George Rubens, Sherer, Henry Clifford,

Yale, '95, Berkshire, '60,

Yale, '91, L. I. Hosp. Coll., '69, Victoria, '89, Univ. N.Y., '81, P. & S., N.Y., '68, Univ. N.Y., '63, P. & S., N.Y., '90, Univ. N.Y., '79,

P. & S., N.Y., '83, Univ. N.Y., '92,

Balt. Med. Coll., '03, Univ. Vt., '97, Yale, '03, Univ. Vt., '97, P. & S., N.Y., '89, Bellevuc, '96,

Yale, '37,

Yale, '75, Yale, '80, Niagara, '98,

Balt. Med., '02,

Windsor Locks. Noroton.

New Haven.
Danielson.
North Grosvenordale
Rockville.
Waterbury.
Willimantic.
New London.
Hartford.

Hartford. Hartford.

Saybrook.
New Haven.
Hartford.
Westport.
New Haven.
Waterbury.

Hartford.

New Haven. Wallingford. Hartford.

Torrington.

Yale, '93, New Haven.
Balt. Med. Coll., '95, New Haven.
P. & S., N. Y., '00, Winsted.
P. & S., Balt., '87, Stamford.
Hahnemann, '01, (Phil.) Bridgeport.
Balt. Med. Coll., '92, New Canaan.
Univ. N. Y., '62, Portland.

Yale, '85, Univ. N.Y., '85, P. & S., N.Y., '82, Univ. N.Y., '89, Jefferson, '90, Univ. Vt., '85, Victoria, '89,

Yale, '02,

Yale, '95,

Yale, '69, Yale, '64, Univ. N.Y., '90, Yale, '66, Univ. N.Y., '92, New Haven. Litchfield. Hartford. Danbury. Salisbury. Norwich. Danielson.

Bridgeport.

New Haven.

Shelton. West Haven. Madison. Hartford. South Norwalk.

Sherrill, George, Sherwood, Stuart Wakeman, Simmons, Willard Nelson, Simonds, Clarence Eugene, Simpson, Frederick Thomas, B.A., Yale, '79, Skiff, Francis Sands, Skinner, Clarence Edward, LL.D., Rutherford, N.C., '00, Skinner, Leander Zebinah, Slattery, Morris Dove, Sleeper, George Everest, Sloan, Thomas George, Smirnow, Louis Mair, Smith, Andrew Jackson, Smith, Charles, Smith, Edward Dorland, A.B., Yale, '96, Smith, Earl Terry, Smith, Edwards Montrose, Smith, Edward Weir, A.B., Yale, '78, Smith, Ernest Herman, A.B., Amherst, '85, Smith, Frank Lewis, Smith, Frank Llewellyn, Smith, Frederick Sumner, B.A., Yale, '79, Smith, Herbert Eugene, Ph.B., Yale, '79, Smith, Henry Hubert, Smith, Howard Franklin, B.A., Yale, '94, Smith, Newton Phineas, Smith, Oliver Cotton, Smyth, Herbert Edmund, Snow, Frank Simeon, Sperry, Frederick Noyes, Spier, Seymour Leopold, Sprenger, William, Standish, James Herbert, Stanley, Charles Everett, Stanton, George Dallas, Stanton, John Gilman, B.A., Amherst, '70, Stanton, Thomas Francis, Starr, Robert Lytton, B.A., Trinity; '97, M.A., '00, Staub, John Howard, Staub, George Edwards, Steadman, Willard George, Steele, Henry Merriman, Ph.B., Yale, '94, Steiner, Walter Ralph, A.B., Yale, '92, M.A., Yale, '95,

Stern, Charles Seymour, A.B., C. C., N. Y.

P. & S., '91, Stamford. Univ. Pa., '02, Westport. Univ. Vt., '89, Tolland. Univ. N.Y., '97, Willimantic. Me. Med. Coll., '84, Hartford. Univ. N. Y., '88, Falls Village. Yale, '91, New Haven. Balt. Med. Coll., '94, Windsor. New Haven. Yale, '93, Dartmouth, '95, Hartford. P. & S., N.Y., '99, East Manchester. Yale, '95, Bridgeport. P. & S., N.Y., '63, Bridgeport. L. I. Hosp. Coll., '90, Riverside. Yale, '99, Bridgeport. Yale, '97, Hartford. P. & S., N.Y., '82, Bridgeport. McGill, Mont., '82, Meriden. P. & S., N.Y., '89, Redding. Univ. N.Y., '75, Stafford Springs. Albany, '83, Bridgeport. Yale, '82, Chester. Univ. Pa., '82, New Haven. Jefferson, '77, New Haven. Yale, '96, Hartford. P. & S., N.Y., '82, Norwich. L. I. Hosp. Coll., '83, Hartford. McGill Univ., '84, Bridgeport. Albany, '89, Hartford. Yale, '94, Yale, '04, New Haven. New Haven. Univ. Vt., '91, New Haven. Univ. N.Y., '95, Hartford. Univ. Pa., '76, Middletown. Bellevue, '65, Stonington. Wurtzburg, '73, New London. P. & S., Balt., '96, Bridgeport. P. & S., N.Y., '01, Hartford. L. I. Coll. Hosp., '99, Stamford. L. I. Hosp. Coll., '93, New Milford. Bellevue, '74, Southington. Johns Hopkins, '02, New Haven. Johns Hopkins, '98, Hartford.

Bellevue, '91,

Hartford.

Stetson, James Ebenezer,
Stevens, Frank William,
Stevens, Howard Granson,
St. John, Samuel Benedict, B.A.,
Yale, '66,
Stockwell, William Myron,
Stoll, Henry Farnum,
Stone, Jay Stephen,
Storrs, Eckley Raynor,
Stoughton, Arthur Volney, B.A.,
Pomona, Calif.,
Stratton, Edward Augustus,
Street, Philo William,

Strosser, Herman,
Sullivan, Daniel,
Sullivan, Daniel Francis, A.B.,
Niagara Univ., '89,
Sullivan, John Francis, B.A.,
Yale, '90,
Sullivan, Michael Joseph,
Sunderland, Paul Ulysses,
Swain, Henry Lawrence,
Swasey, Erastus Perry,
Swenson, Andrew Clay,
Swett, Josiah,
Swett, Paul Plummer,

Stretch, James,

Taft, Charles Ezra,
Tanner, Alfred Herbert,
Taylor, John Clifton,
Taylor, Maude Winifred,
Teele, Julia Ernestine, A.B.,
Tabor, '85,
Tenney, Arthur John, Ph.B.,
Yale, '77,
Thibault, Louis Joseph,
Thompson, George,
Thompson, Emma Jane,

Thompson, Harriet Adaline,

Thompson, Lloyd Orrin,
Thompson, Whitefield Nelson,
Tiffany, Frank Monroe, A.B.,
Amherst, '9t,
Tingley, Witter Kinney,
Tinker, William Richard,
Topping, Jacob Reed,
Townsend, Charles Rodman,
Townsend, Jos. Hendley, B.A.,
Yale, '85,
Tracey, William Joseph,
Tracy, Andrew William,
Travis, Catherine Hutchison,

Yale, '81, Yale, '00, Balt. Med. Coll., '04,

P. & S., N.Y., '75, Univ. Pa., '04, P. & S., N.Y., '02, P. & S., N.Y., '65, Jefferson, '90,

Univ. Ohio, '98, Univ. N.Y., '83, Univ. Vt., '92, Univ. Coll., Richmond, Va., '02, Univ. Berlin, '84, Univ. N.Y., '97,

Niagara Univ., '91,

P. & S., N.Y., '94, Cornell, '00, N. Y. Hom. Med., '94, Yale, '84, P. & S., N.Y., '69, Yale, '02, Univ. Vt., '78, Univ. N.Y., '04,

Harvard, '86, Bellevue, '74, Univ. Mich., '91, Tufts, '05, Women's Med. Coll., Pa., '88,

Yale, '83, Yale, '00, Me. Med. Coll., '89, Women's Med. Coll., N.Y., Inf., '96, Women's Med. Coll., Pa., '93, Dartmouth, '92, Jefferson, '89,

Univ. Pa., '96, Bellevue, '86, Univ. N.Y., '80, Univ. N.Y., '82, Albany, '95,

Yale, '87, Univ. N.Y., '89, McGill, Mont., '73, Johns Hopkins, '03, New Haven. Bridgeport. Cornwall.

Hartford.
Suffield.
Hartford.
New Britain.
Hartford.

Terryville. Danbury. Suffield.

Stafford Springs. New Britain. New London.

Hartford.

New Haven.
Meriden.
Danbury.
New Haven.
New Britain.
Waterbury.
New Hartford.

Hartford. Brooklyn. New London. Hartford.

New Haven.

Branford. Waterbury. Taftville.

Hartford.

Bridgeport. Greenwich. Hartford.

Stamford. Norwich. South Manchester. Bridgeport. Bridgeport.

New Haven. Norwalk. Meriden. New Britain.

Treadway, William Buckingham, Univ. Mich., '83," Trecartin, David Munson, Tudor, Mary Starr,

Tukey, Frank Martin, B.A., Bowdoin, '91, Turbert, Edward Joseph, Turner, Arthur Robert, A.B., Amherst, '84, Tuttle, Charles Alling, Ph.B., Yale, '88, Tyler, Jr., Heman Augustin, VanStrander, William Harold, Van Vleet, Peter P., Varno, Henry George, Verdi, William Francis, VonTobel, Albert Eugene, B.A., Yale, '96,

Wade, John Alexander, Wadhams, Sanford Hosea, Wadhams, Noah Samuel, Ph.B., Yale, '97, Waite, Frank Louis, Walsh, Frederick William, Walsh, Thomas Patrick, Warner, Charles Norton, Warner, George Howell, Wason, David Boughton, Waterhouse, Henry Edwin, Waters, John Bradford, Watson, William Clark, Watson, William Seymour, Weidner, Calvin, Weir, Janet Marshall,

Welch, Edward Hubbard, Welch, George Kellogg, Welch, Harry Little, A.B., Yale, '94, Welch, Thomas Francis, Welch, William Collins, Weldon, John, Weldon, Thomas Henry, Wellington, William Winthrop, Wells, Ernest Alden, A.B., Yale, '97,

West, Redfield B., Wheatley, Louis Frederick, Wheeler, Frank Henry, B.A., Yale, '80, Wheeler, Lewis Hawley,

White, Benjamin Walker, White, Robert Creighton, Whiton, Francis Henry, Whittemore, Edw. Lancaster, Ph.B., Yale, '92,

Dartmouth, '94, Women's Med. Coll., Pa., '93.

Harvard, '91 Balt, Med. Coll., '04,

Univ. Paris, '94,

Yale, '90, Yale, '98, Univ. Vt., '00, Bellevue, '69, P. & S., Balt., '82, Yale, '94,

Yale, '99,

Bellevue, '93, Yale, '96,

Yale, 'oo, Bellevue, '88, P. & S., Balt., '85, Univ. Vt., '02, Jefferson, '96, Yale, '97, P. & S., N.Y., '00, P. & S., N.Y., '02, Univ. Vt., '90, L. I. Hos. Coll., '97, L. I. Hosp. Coll., '87, Univ. Ind., '93, Queen's Univ. Kingston, Ont., '91, Yale, '76, P. & S., N.Y., '78,

Yale, '97, Georgetown, '04, Yale, '77, Univ. N.Y., '83, Univ. N.Y., '83. Univ. Vt., '89,

Johns Hopkins, 'or, Univ. N.Y., '79, Tufts, '03,

Yale, '82, Yale, '97, L. I. Hosp. Coll., '86, Univ. Vt., '89, Dartmouth, '72,

Univ. Va., '94,

Stamford. Bridgeport.

South Windsor.

Bridgeport. Hartford.

Norwalk.

New Haven. Hartford. Hartford. Stamford. Thompsonville. New Haven.

Meriden.

Danbury. Torrington.

Goshen. Hartford. Rockville. Middletown. Litchfield. Bridgeport. Bridgeport. Bridgeport. Hartford. Bridgeport. Danbury. Manchester.

Hartford. West Winsted. Hartford.

New Haven. Hartford. New Haven. Willimantic. South Manchester. Terryville.

Hartford. Guilford. Meriden.

New Haven. Westport. Bridgeport. Willimantic. Manchester.

New Britain.

Whittemore, Edward Reed, A.B.,		
Yale, '98,	P. & S., N.Y., '02,	New Haven.
Whittemore, Frank Hamilton,	Bellevue, '74,	New Haven.
Wight, George DeWitt,	Bellevue, '87,	Bethel.
Willard, Frederick Buell,	, - <b>-</b> ,	
A.B., Univ. Vt., '97.	Univ. Vt., '00,	Hartford.
Williams, Marian Walker, A.B.,	,,	
Radcliffe, '97,	Johns Hopkins, 'or,	Hartford.
Williams, Allen Hamilton, A.B.,	Jenne 110pmme, 01,	
Harvard, '91,	Harvard, 'or,	Hartford.
Wilmot, Louis Howard,	Univ. N.Y., '91,	Ansonia.
Wilson, Frederick Morse, A.B.,	C 21121, 92,	
· Colby, '71,	Harvard, '75,	Bridgeport.
Wilson, James Francis,	Univ. Vt., '04,	Hartford.
Wilson, William Patrick,	P. & S., Balt., '90,	Wallingford.
Winchell, Alverd Ezra, A.B.,	1. d 5., Dart, 90,	waningiord.
Wesleyan, '57,	P. & S., N.Y., '65,	New Haven.
Winne, William Nelson,	Univ. N.Y., '97,	New Haven.
Winship, Ernest Oliver,	Univ. Vt., '00,	Rockville.
Witter, Orrin Russell,	P. & S., N.Y., 'or,	Hartford.
Witter, William,	Yale, '65,	Norwich.
Wolff, Arthur Jacob,	Tex. Med. Coll., '76,	1401 WICH.
Trong Inchar Jacob,	Bellevue, '83,	Hartford.
Wooster, Charles Morris,	Univ. N.Y., '79,	Tariffville.
Wordin, Nathaniel Eugene, B.A.,	Omv. 14.1., 79,	i ai iii viiic.
Yale, '70; M.A., Yale, '72,	Jefferson, '73,	Bridgeport.
Wright, Frank Walden,	Bellevue, '80,	New Haven.
Wright, George Herman,	P. & S., N.Y., '94,	New Milford
Wright, John Winthrop, A.B.,	11. (4, 14.1., 94,	New Millord
Amherst, '77,	Univ. N.Y., '80,	Bridgeport.
Wright, Theodore Goodelle,	Univ. N.Y., '65,	New Britain.
Wurtenberg, William Charles,	OHIV. 14.1., 05,	New Dillani.
Ph.B., Yale, '89,	Yale, '93,	New Haven.
111.15., 1410, 09,	1 aic, 93,	New Haven.
Young, Charles Bellamy,	P. & S., N.Y., '94,	Middletown.
roung, Charles Delianty,	1, 0, 0, 14, 1, 94,	Atludictowii.

Members noticing any errors or omissions in any part of this record will please inform the Secretary for correction in future lists.







